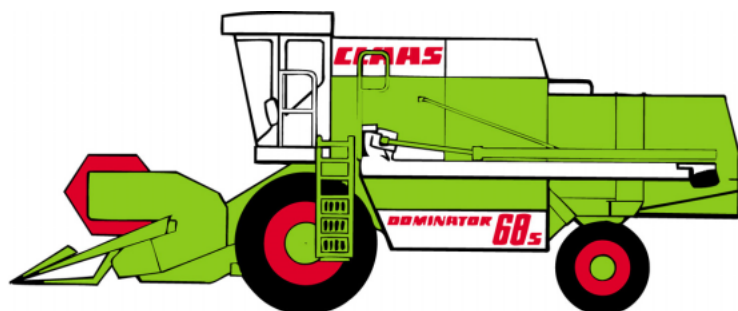


TECHNICAL SYSTEMS
Electric System

CLAAS



Dominator 48 – 68
DO 48 from Serial No. 15403117
DO 68 from Serial No. 15608462

Layout of electric circuit diagrams

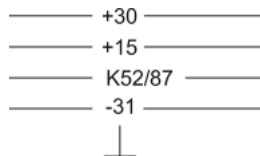
Following the circuit diagram layout, all electric circuits are shown in individual circuit diagrams. Some explanations are given below to illustrate the layout.

Numbering of circuit diagrams

DO-e-01a

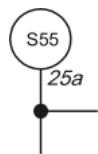
- The respective numbering can be found on the corresponding cover sheet and in the footer.
- Depending on the machine no., the components fitted and the country specification, there may be several individual circuit diagrams 01a, 01b, etc. for a given function.

Potentials



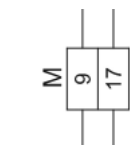
- Main power supply (battery)
- Ignition switch power supply (switched)
- Relay-controlled power supply
- Earth
- Housing earth (external)

Connections

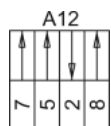


- The description provided **inside** the circle (e.g. „S55”) defines the connection.
- Numbers **next to** the circle (e.g. „25a”) describe the continuation of the cabling in accordance with the circuit diagram numbering. This circuit diagram numbering can be taken among others from the footer.

Designations



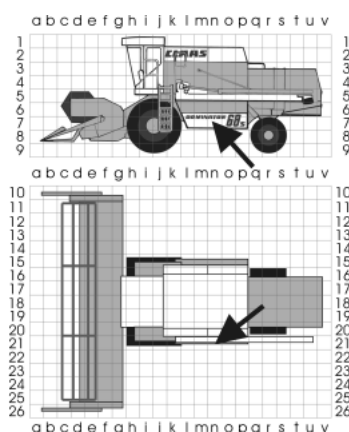
- Connectors (e.g. „M”, pin 9 and 17).
Each chapter lists the respective connectors and their pin assignment in the individual connection tables.



- Modules (e.g. „A12” - Speed monitor)
The arrows identify the functional inputs and outputs according to the assignment table provided in chapter **ZE**.

7-n-21

- Position of components according to component grid coordinates



A 1 ... Z 99

- Component designation according to CLAAS standards catalogue

- A- Terminal / Module
- B- Sensor
- E- Lighting
- F- Fuse
- G- Voltage Source
- H- Signalling Device / Lamp
- K- Relay
- M- Electric Motor
- P- Gauge
- R- Potentiometer / Resistor
- S- Switches – Cab Operation
- T- Switches – Terminal Operation
- U- Switches – External Operation
- V- Electronic Component
- W- Antenna
- X- Connector
- Y- Solenoid coil
- Z- Actual Value Function Switch

Connections list

- List of connections within the central terminal compartment, stating cross-section (mm²) and colour of cables connected to the machine.

Connector	mm ²	Colour
E -1	1.5	gr
M - 4	1	gr/rd

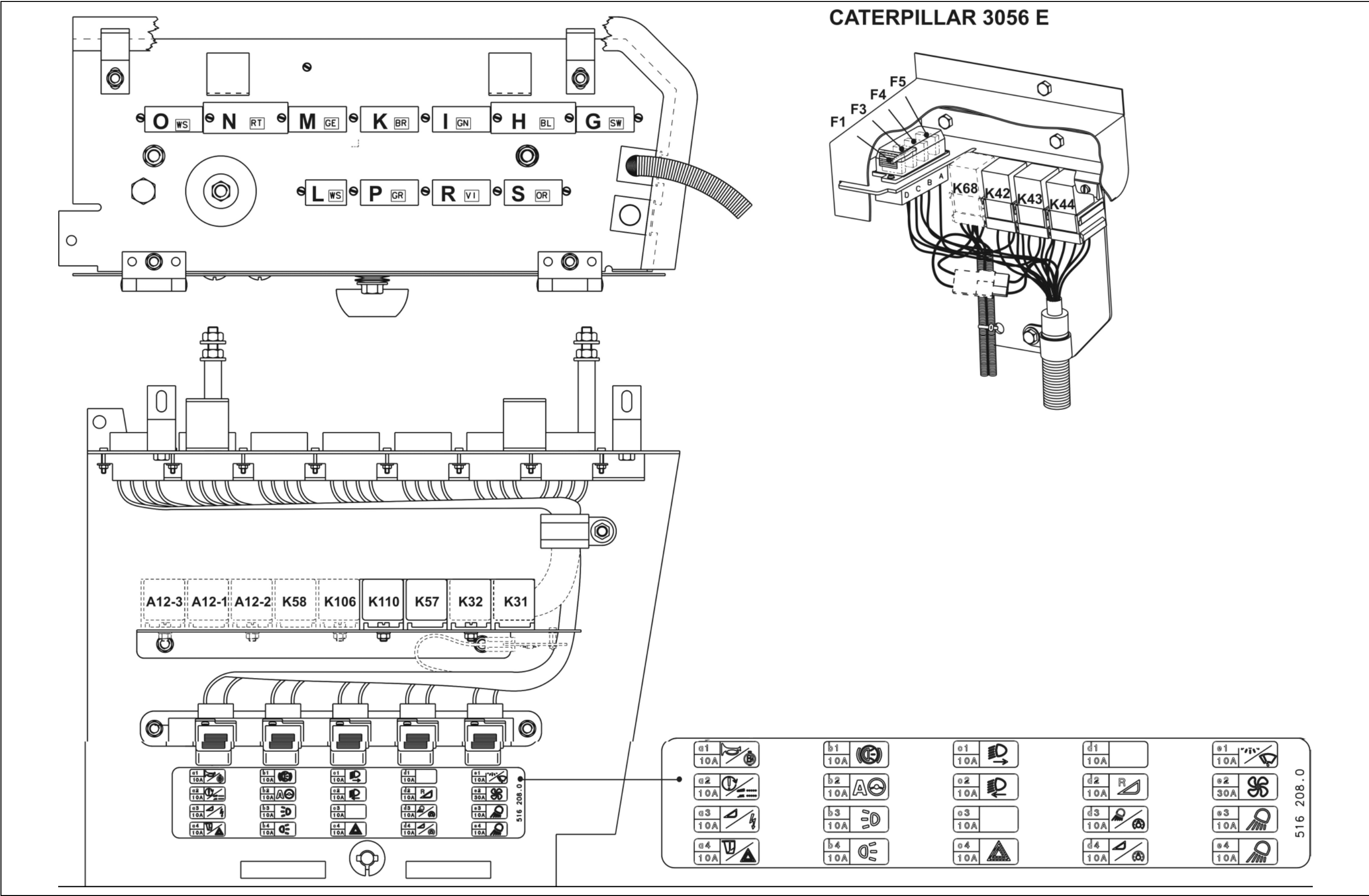
- rd-red
- bk-black
- br-brown
- wh-white
- bl-blue
- gr-grey
- ye-yellow
- gn-green
- pi-pink
- or-orange
- vi-violet

Central terminal compartment	ZE-2
Pin assignment in modules	ZE-6
Module A12-1 - Speed monitor (DZW)	ZE-7
Module A12-2 - Speed monitor (DZW)	ZE-7
Module A12-3 - Speed monitor (DZW)	ZE-7
Module A15 - Electronic engine control module CATERPILLAR (CAT)	ZE-8
01a Main power supply, diesel engine electric starting motor - for mechanical engine control	01a-2
01b Main power supply, diesel engine electric starting motor - for electronic engine control (CAT)	01b-2
02a Starting the diesel engine and engine control - for mechanical engine control	02a-2
02b Starting the diesel engine and engine control - for electronic engine control (CAT) ...	02b-2
03a Diesel engine cut-off system - for mechanical engine control	03a-2
03b Diesel engine cut-off system - for electronic engine control (CAT)	03b-2
12a Performance monitor	12a-2
13a Straw collector - for mechanical engine control	13a-2
13b Straw collector / Reversing horn - for electronic engine control (CAT)	13b-2
17a Front attachment drive, Reverser drive	17a-2
25a Speed monitor	25a-2
26a Machine monitor	26a-2
28a AUTOPILOT - (connection)	28a-2
30a Warning beacon - (connection)	30a-2
31a Turn flasher light, Hazard warning flasher	31a-2
32a Main lighting circuit, Position light	23a-2
34a Work lights, Instrument lighting	34a-2
35a Brake light	35a-2
37a Windscreen wiper	37a-2
38a Compressor-type air conditioner - for mechanical engine control	38a-2
38b Compressor-type air conditioner - for electronic engine control (CAT)	38b-2
40a Additional sockets (connection)	40a-2
Component grid	R-2
Index:	Index-3

* - Chapters not mentioned are not available due to the machine equipment versions

Central terminal compartment

Central terminal compartment



Key to diagram:

	Modules	Circuit diagram no.
A12-1	Speed monitor (DZW) / straw walker, returns module	25
A12-2	Speed monitor (DZW) / feed rake conveyor, grain elevator module	25
A12-3	Speed monitor (DZW) / chopper module	25
	Electronic components	
DI	Warning device diode PCB	25
	Fuses	
a1	Horn, engine fuel pump	2, 3
a2	Performance monitor, speed monitor	12, 25
a3	Cutterbar spring pre-stress, pre-set cutting height control display instrument	26
a4	Vehicle information unit, cab relay	1, 3, 26, 31, 38
b1	Brake light	35
b2	Autopilot	28
b3	Side lights front left, taillight left, trailer lighting left	32
b4	Side lights front right, taillight right, trailer lighting right	32
c1	Dipped headlights, right	32
c2	Dipped headlights, left	32
c3	not used	-
c4	Hazard warning flasher 30+	31
d1	Additional socket (connection)	40
d2	Reverse cutterbar, straw collector	13, 17
d3	Instrument lighting, work lights	34
d4	Cutterbar spring pre-stress, pre-set cutting height control display instruments	26
e1	Windscreen wiper, cab lighting	38
e2	Cab fan	38
e3	Work lights	34
e4	Work lights	34
F1	Compressor-type air conditioner	38
F2	Wheel position indicator (in wiring loom)	26
F3	Cold start relay (preheating)	2b
F4	Diesel fuel injection On relay	2b
F5	Engine control battery plus	2b

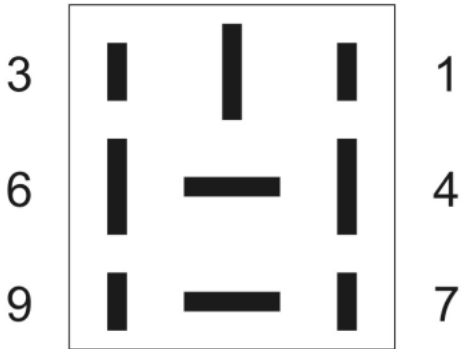
Key to diagram:

	Relays	Circuit diagram no.
K31	Cab relay	38
K32	Work lights relay	34
K42	Electronic engine control relay	2b
K43	Electronic engine control relay	2b
K44	Electronic engine control relay	1b
K57	Transducer (Turn indicator system)	31
K58	Pulse relay / speed monitoring	25
K106	Relay / speed monitoring	25
K110	Horn relay	3

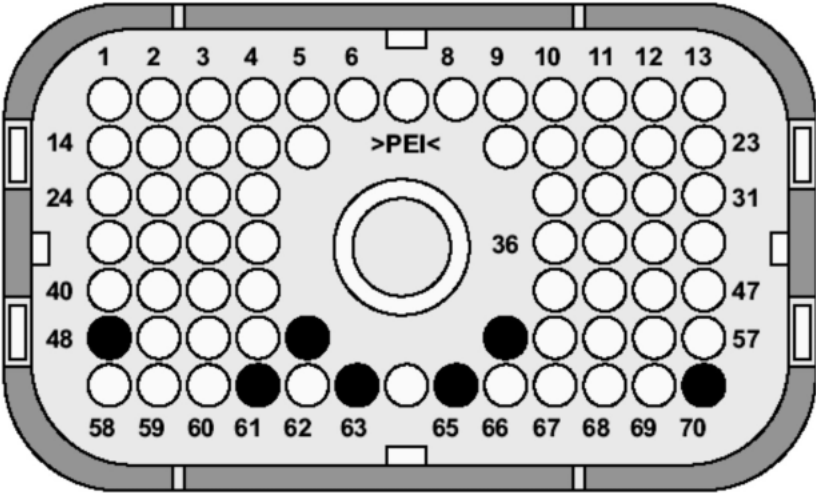
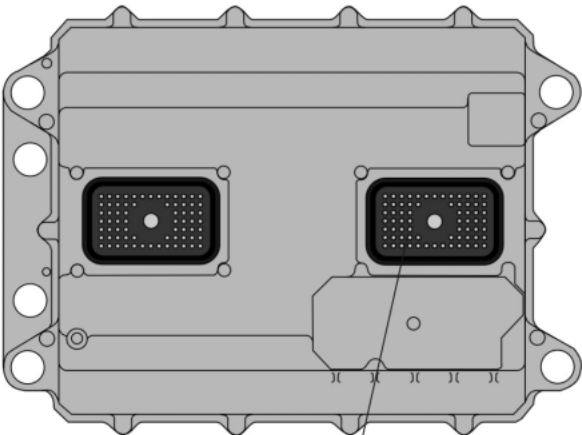
Pin assignment in modules

Pin assignment in modules

A12,



A15-CAT



400379

Module A12-1 - Speed monitor (DZW)

Pin	Function	Component	Measuring variable	Direction	Circuit diagram no.
1	---	---	---	---	---
2	K 58 pin 49 (Acoustic alarm)	K58	12 V	Output	25a
3	---	---	---	---	---
4	Straw walker signal light	H35	12 V	Output	25a
5	Power supply + 15	S55	12 V	Input	25a
6	Returns elevator signal light	H36	12 V	Output	25a
7	Straw walker speed sensor	B26	1.0 – 1.2 kΩ	Input	25a
8	Earth (GND)	-31	Earth	Input	25a
9	Returns speed sensor	B29	1.0 – 1.2 kΩ	Input	25a

Module A12-2 - Speed monitor (DZW)

Pin	Function	Component	Measuring variable	Direction	Circuit diagram no.
1	Earth (GND)	-31	Earth	Input	25a
2	K 58 pin 49 (Acoustic alarm)	K58	12 V	Output	25a
3	---	---	---	---	---
4	Feed rake conveyor signal light	H27	12 V	Output	25a
5	Power supply + 15	S55	12 V	Input	25a
6	Grain elevator signal light	H32	12 V	Output	25a
7	Feeder housing speed sensor	B12	1.0 – 1.2 kΩ	Input	25a
8	Earth (GND)	-31	Earth	Input	25a
9	Grain elevator speed sensor	B21	1.0 – 1.2 kΩ	Input	25a

Module A12-3 - Speed monitor (DZW)

Pin	Function	Component	Measuring variable	Direction	Circuit diagram no.
1	---	---	---	---	---
2	K 58 pin 49 (Acoustic alarm)	K58	12 V	Output	25a
3	Earth (GND)	-31	Earth	Input	25a
4	Straw chopper signal light	H34	12 V	Output	25a
5	Power supply + 15	Z59/S55	12 V	Input	25a
6	---	---	---	---	---
7	Straw chopper speed sensor	B28	1.0 – 1.2 kΩ	Input	25a
8	Earth (GND)	-31	Earth	Input	25a
9	---	---	---	---	---

Note: The modules A12-1, A12-2 and A12-3 are identical.
They perform different functions, depending on their connector pin assignment.

Module A15 - Electronic engine control module CATERPILLAR (CAT)

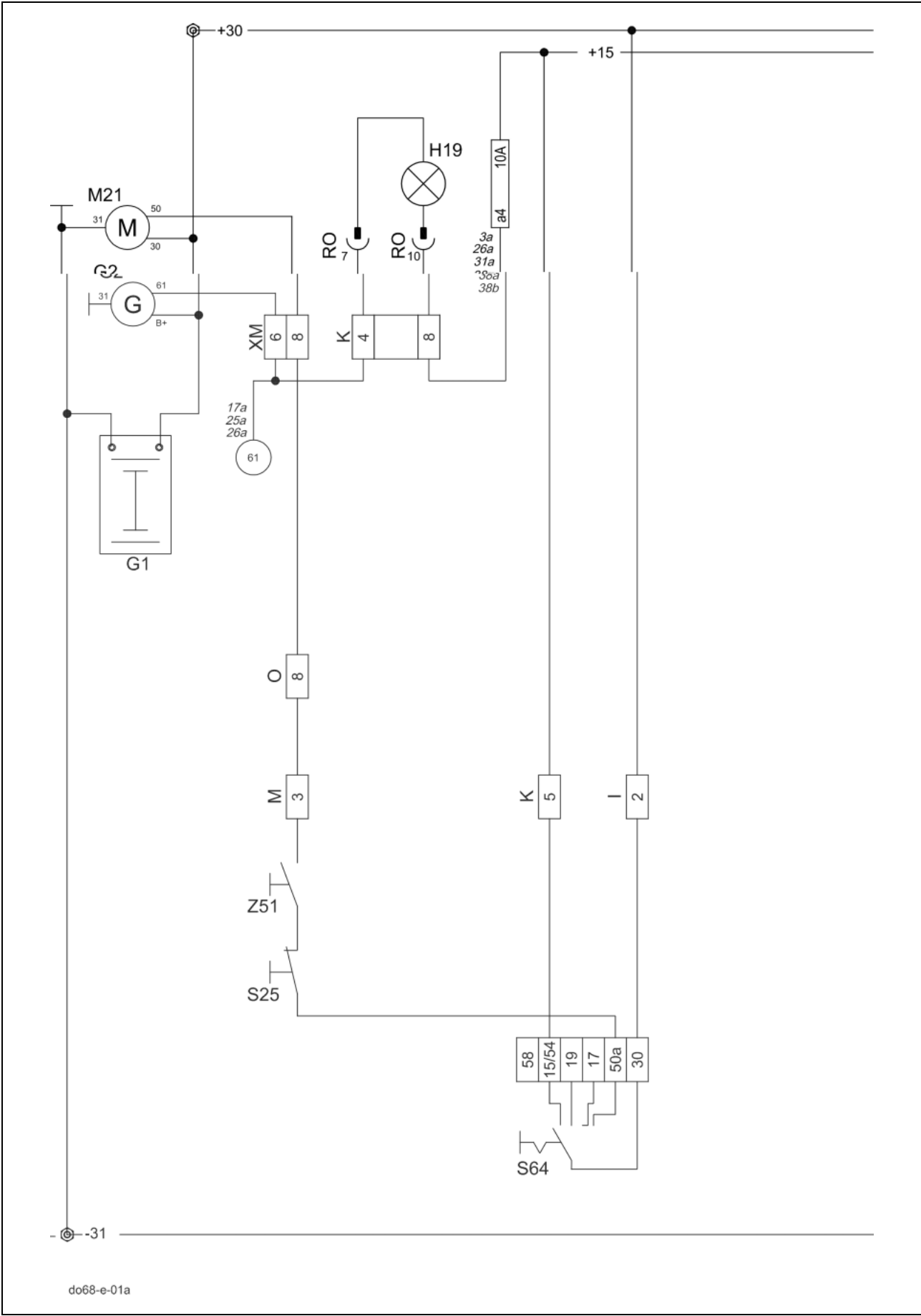
Pin	Function	Component	Measuring variable	Direction	Circuit diagram no.
12	Engine pre-heating signal light (diagnosis)	H22	12 V	Output	3b
20	Power supply S35	S35	---	Output	3b
23	Stop warning light (diagnosis)	H21	12 V	Output	2b
37	Max. engine speed signal	S35	---	Input	2b
42	Injection release	K43	Earth	Output	2b
43	Cold start / engine pre-heating	K42/R15	12 V	Output	2b
48	Power +30 (Injection On)	K43/F4	12 V/30 A	Input	2b
56	Power +30	F5	12 V/10 A	Input	2a
57	Power +30	F5	12 V/10 A	Input	2a
58	Earth	-31	Earth	Input	2b
59	Earth	-31	Earth	Input	2b
68	Earth	-31	Earth	Input	2b
70	Power +15	F a1	12 V/10 A	Input	2b

01a

**Main power supply,
Diesel engine electric starting motor**

- for mechanical engine control

01a Main power supply, diesel engine electric starting motor - for mechanical engine control



Key to diagram:		Coordinates
G1	Battery	7-O-20
G2	Generator	3-Q-17
H19	Alternator charging light signalling	3-I-18
M21	Diesel engine electric starting motor	3-O-19
S25	Main drive switch (threshing mechanism clutch)	4-J-19
S64	Ignition lock switch	3-I-18
XM	Connector to engine wiring loom	4-N-19
Z51	Ground drive clutch safety start switch - actual value switch	5-I-19

Description of function:

Safety start switch

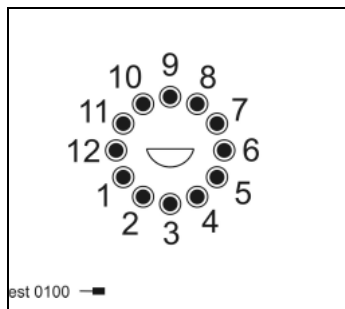
Terminal 50 of the diesel engine electric starting motor M21 is only supplied with plus power as a safety start switch when the ground drive clutch safety start switch actual value switch (Z51) is actuated and the threshing mechanism (S25) is disengaged.

Diesel engine electric starting motor

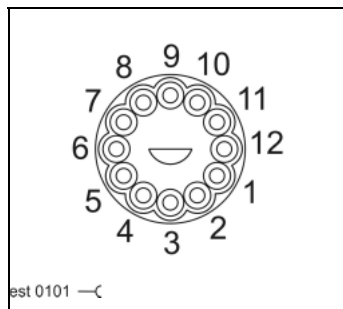
The ignition lock (S64) switches the diesel engine electric starting motor.

Connector pin assignment:

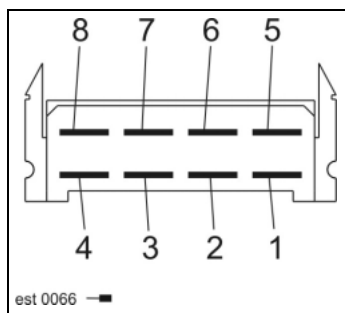
Connector RO



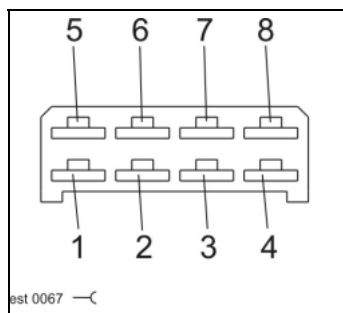
Socket RO



Connector I, K, M, O, XM



Socket I, K, M, O, XM



Connections list

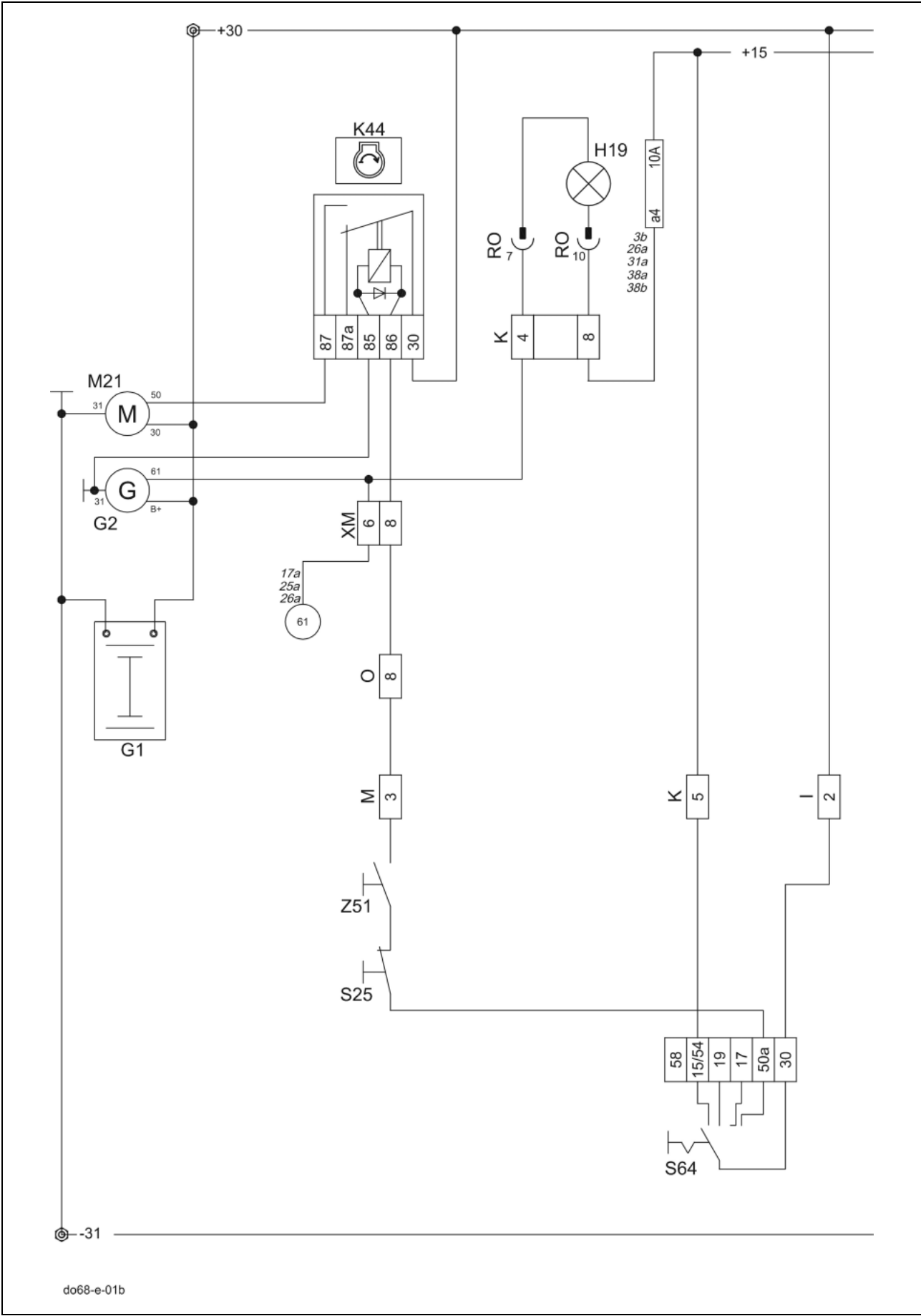
Connector	mm ²	Colour
I -2	6	rd
K -4	0.5	bl
K -5	6	bk
K -8	1.5	bk
M -3	6	bk/ye
O -8	6	bk/ye
RO -7	0.5	bl
RO -10	1.5	bk
S64 -15/54	6	bk
S64 -30	6	rd
S64 -50	6	bk/ye
XM -6	1	bl
XM -8	6	bk/ye

01b

**Main power supply,
Diesel engine electric starting motor**

- for electronic engine control (CAT)

01b Main power supply, diesel engine electric starting motor - for electronic engine control (CAT)



Key to diagram:

		Coordinates
G1	Battery.....	7-O-20
G2	Generator.....	3-Q-17
H19	Alternator charging light signalling	3-I-18
K44	Start relay	2-O-17
M21	Diesel engine electric starting motor	3-O-19
S25	Main drive switch (threshing mechanism clutch).....	4-J-19
S64	Ignition lock switch.....	3-I-18
XM	Connector to engine wiring loom	4-N-19
Z51	Ground drive clutch safety start switch - actual value switch	5-I-19

Measured value table:

Item	Component	Measured value	Remark
K44	Remote control relay	85±7 Ω	(Pin 85 - Pin 86)
		20 A	(Pin 30 - Pin 87a)
		40 A	(Pin 30 - Pin 87)

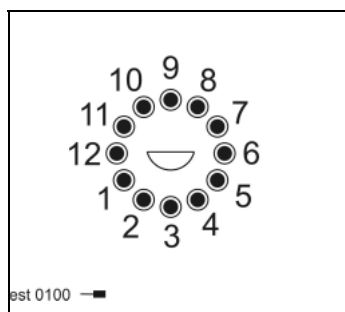
Description of function:

Electric starting motor circuit

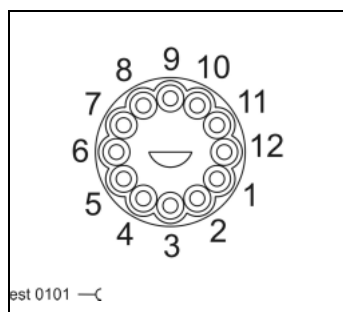
The diesel engine electric starting motor (M21) is controlled by start relay K44. Relay K44 can be actuated only via pin +50a of ignition lock (S64) if the ground drive clutch safety start switch actual value switch (Z51) is actuated and the threshing mechanism (S25) is disengaged.

Connector pin assignment:

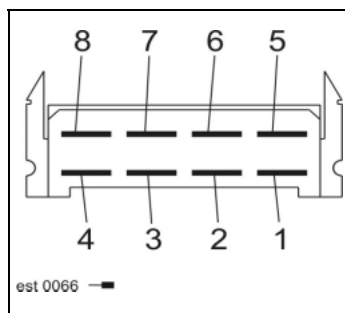
Connector RO



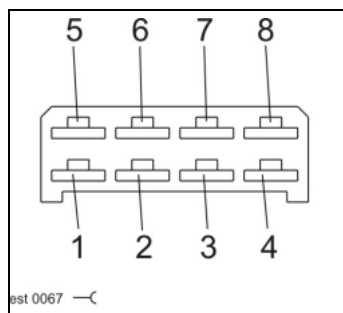
Socket RO



Connector I, K, M, O, XM



Socket I, K, M, O, XM



Connections list

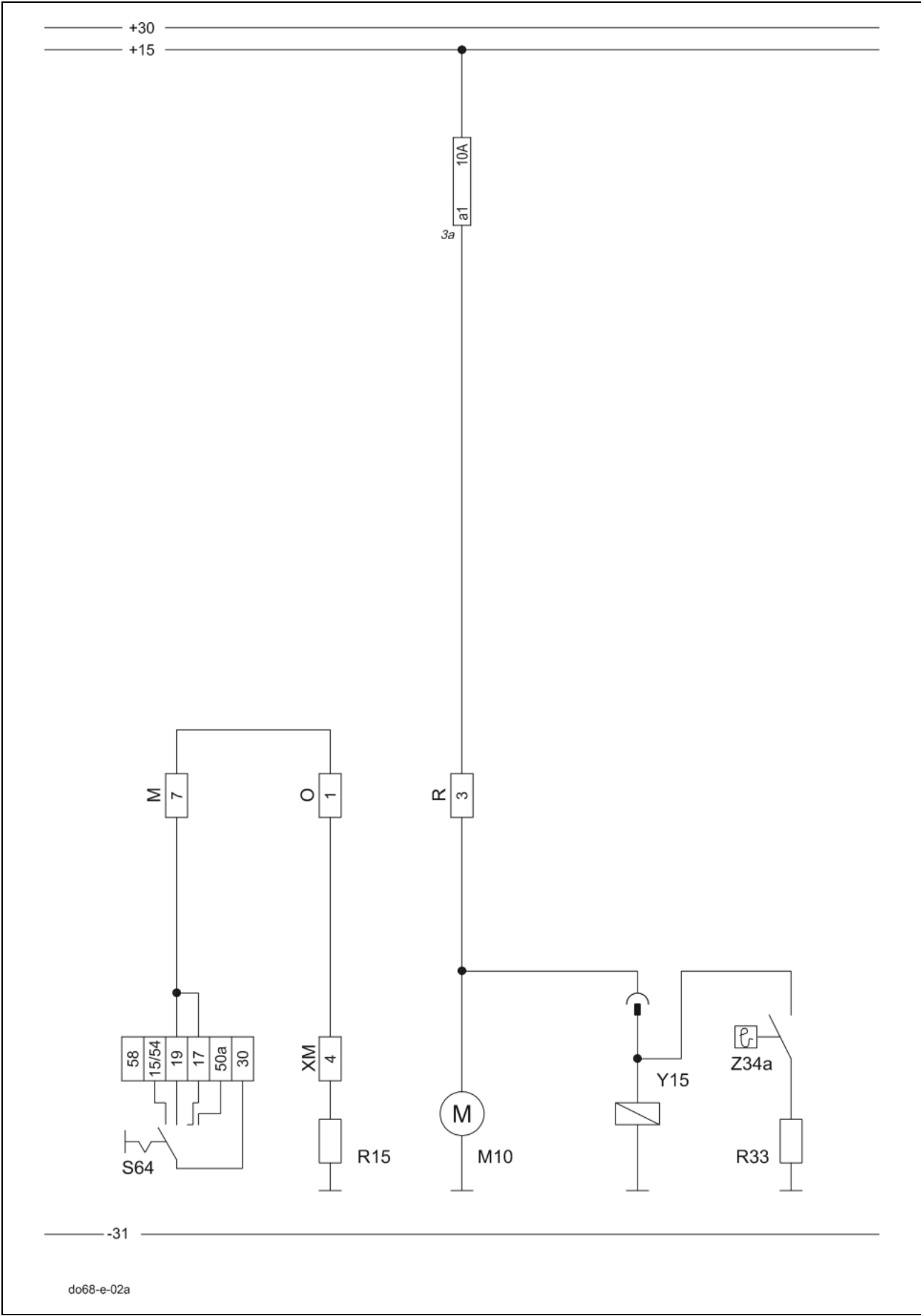
Connector	mm ²	Colour
I -2	6	rd
K -4	0.5	bl
K -5	6	bk
K -8	1.5	bk
K44 -30	6	rd
K44 -85	1	br
K44 -86	1	bk/ye
K44 -87	4	bk/ye
M -3	6	bk/ye
O -8	6	bk/ye
RO -7	0.5	bl
RO -10	1.5	bk
S64 -15/54	6	bk
S64 -30	6	rd
S64 -50	6	bk/ye
XM -6	1	bl
XM -8	6	bk/ye

02a

Starting the diesel engine and engine control

- for mechanical engine control

02a Starting the diesel engine and engine control - for mechanical engine control



Key to diagram:		Coordinates
M10	Fuel pump motor.....	5-O-16
R15	Diesel engine cold start device resistor	2-O-17
R33	Diesel engine start of flow adjustment resistor	2-N-17
S64	Ignition lock switch.....	3-I-18
Y15	Diesel engine solenoid solenoid coil.....	2-N-17
Z34a	Coolant temperature actual value function switch	2-O-17

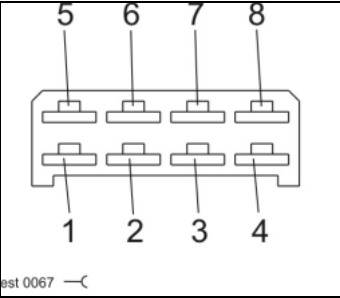
Measured value table:			
Item	Component	Measured value	Remark
M10	Motor	< 2 A at 12 V	
Z34a	Switch (NO contact)	Switch point approx. 47° C	

Description of function:

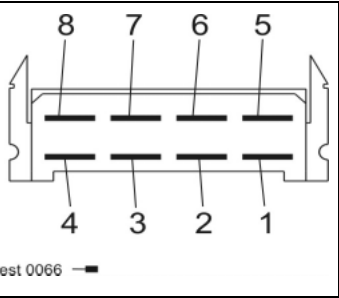
Solenoid circuit	Solenoid Y15 is actuated directly by +15 when the ignition is switched on. The diesel injection pump is in operating mode when solenoid Y15 is actuated.
Start of flow adjustment (Perkins)	At a cooling water temperature of 47°C, the temperature switch Z34a closes. Thus an expansion agent is heated via resistor R33 which sets the injection pump internally to "late" direction.
Cold start device	Cold start device R15 is actuated by the ignition lock switch S64.

Connector pin assignment:

Socket M, O, R, XM



Connector M, O, R, XM



Connections list

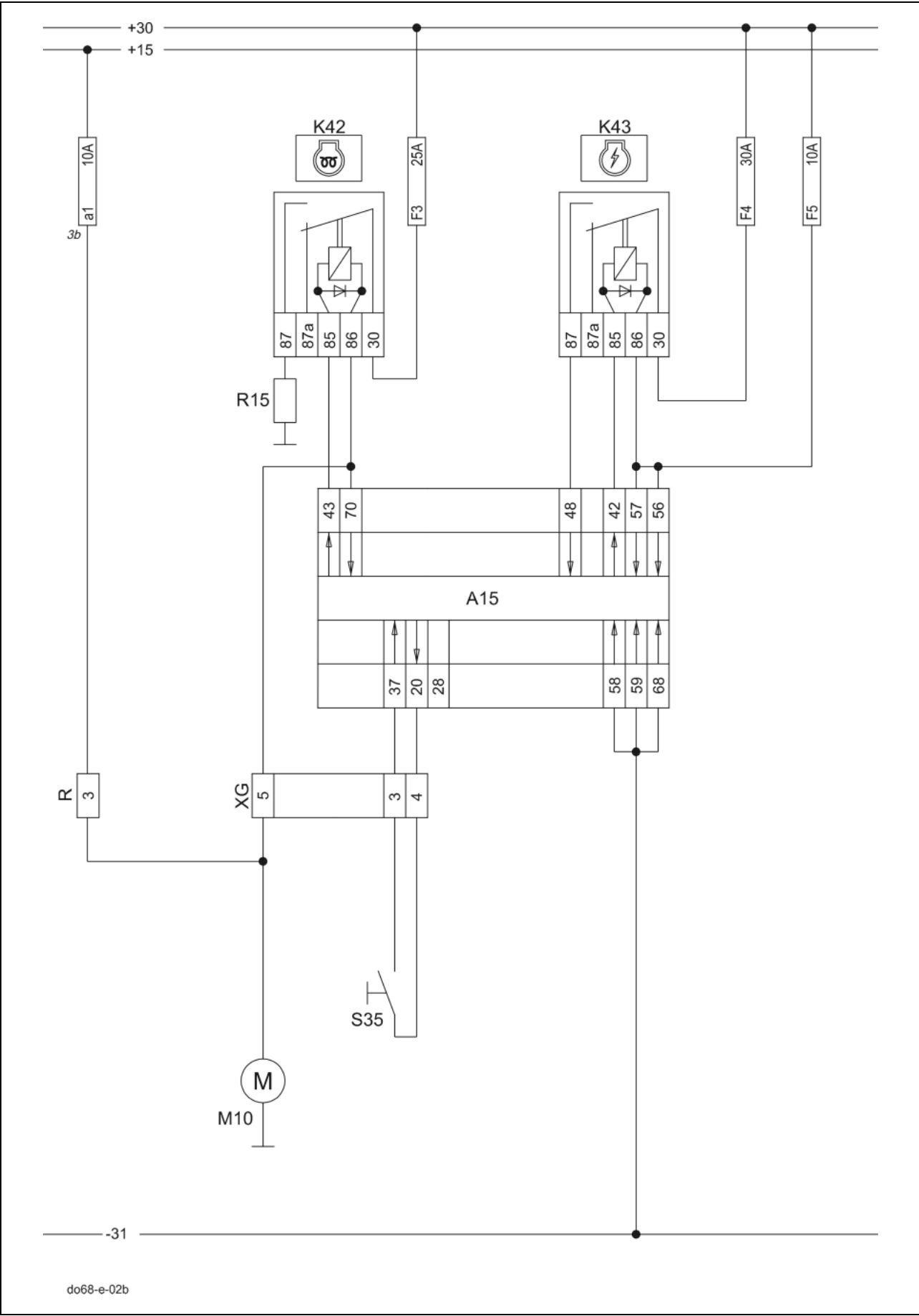
Connector	mm ²	Colour
M -7	2.5	bk/gr/rd
O -1	2.5	bk/gr/rd
R -3	1.5	bk/ye
S64 -19	2.5	bk/gr/rd
S64 -17	1.5	bk/gr/rd
XM -4	2.5	bk/gr/rd

2b

Starting the diesel engine and engine control

- for electronic engine control (CAT)

02b Starting the diesel engine and engine control - for electronic engine control (CAT)



Key to diagram:

		Coordinates
A15	Electronic engine control module.....	3-Q-17
K42	Cold start relay.....	2-N-17
K43	Diesel fuel injection On relay	2-N-17
M10	Fuel pump motor.....	5-O-16
R15	Diesel engine cold start device resistor	2-O-17
XG	Engine wiring loom / main wiring loom connector	2-O-17

Measured value table:

Item	Component	Measured value	Remark
K42	Remote control relay	85±7 Ω	(Pin 85 - Pin 86)
K43		20 A	(Pin 30 - Pin 87a)
		40 A	(Pin 30 - Pin 87)

Description of function:

Operational readiness of diesel injection

After switching on the ignition, the electronic engine control module A15 receives a plus signal at pin 70.
After the signal is received, the electronic engine control module A15 performs a self-test of the engine electronics.
If this self-test is successful, the electronic engine control module A15 actuates relay K43 – the diesel injection is ready for operation.

Cold start

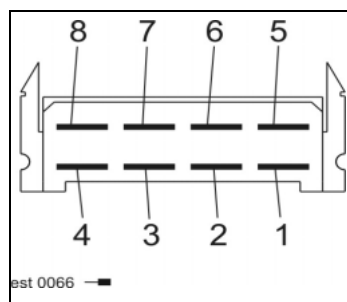
When starting the diesel engine, the cold start device (R15) is actuated automatically by the electronic engine control module A15.
This actuation depends on external parameters (e.g. outside temperature).
The associated sensors are included in the engine wiring loom (see Caterpillar)
Operation of the cold start device is indicated by indicator light H22 (see diagram 3b).

Engine speed adjustment

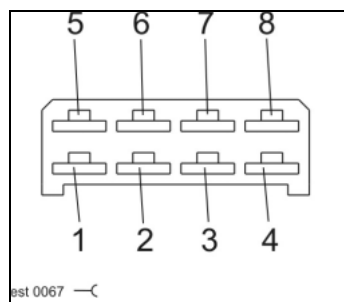
By actuating switch S35, the diesel engine speed is changed from idle speed to operating speed.

Connector pin assignment:

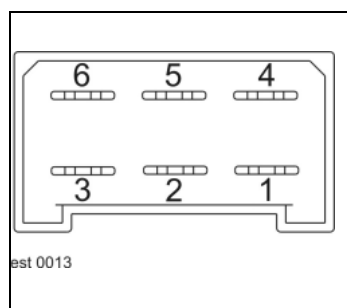
Connector R



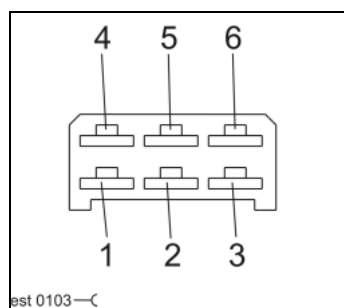
Socket R



Connector XG



Socket XG

**Connections list**

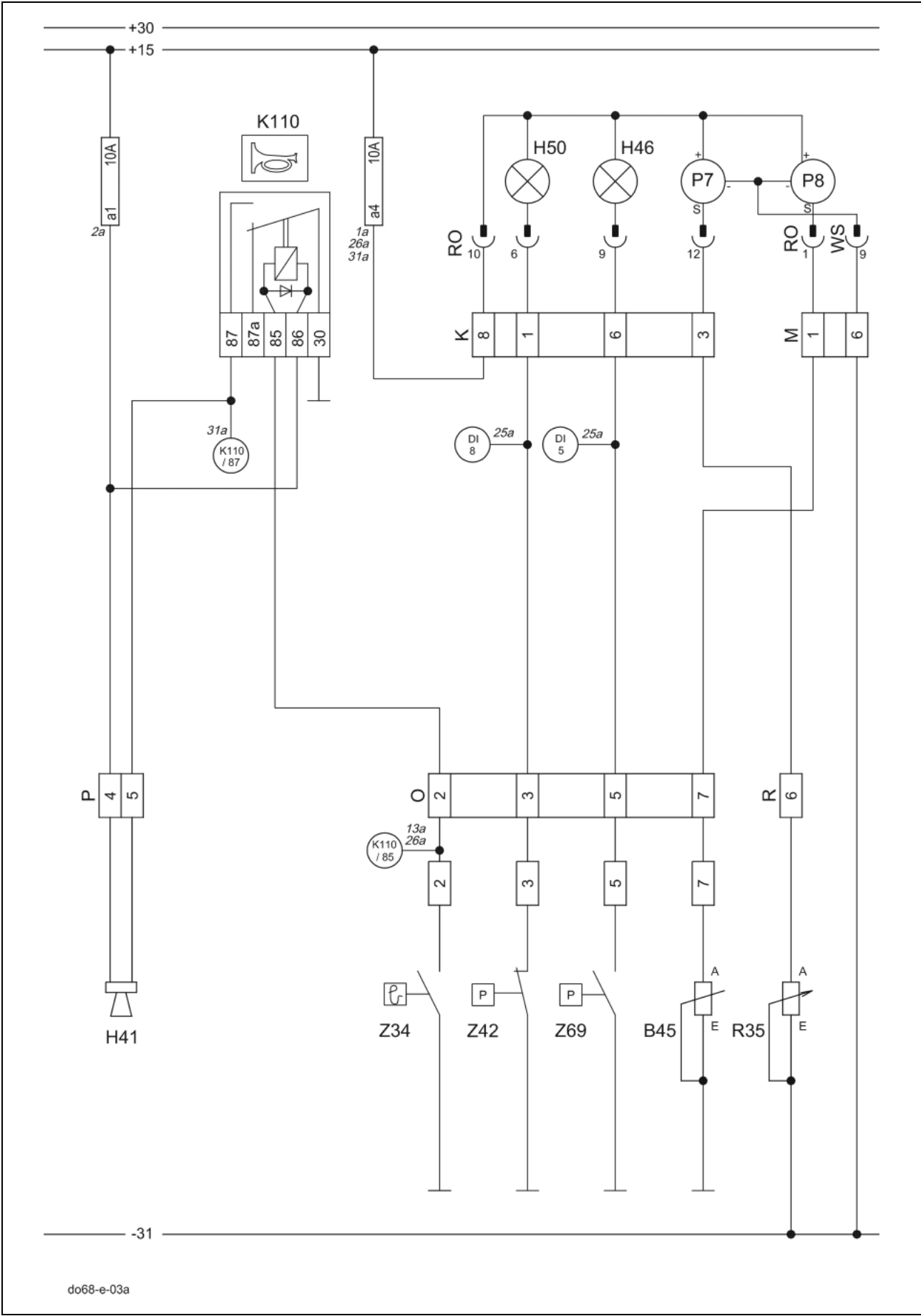
Connector	mm ²	Colour
R -3	1.5	bk/ye
K42 -30	6.0	rd
K42 -85	1.0	bk/gr
K42 -86	1.0	bk
K42 -87	2.5	bk/rd
K43 -30	6.0	rd
K43 -85	1.0	br/bl
K43 -86	1.0	bk
K43 -87	2.5	bk/bl
XG -3	1.0	wh/rd
XG -4	1.0	wh/bk
XG -5	1.5	bk

3a

Diesel engine cut-off system

- for mechanical engine control

03a Diesel engine cut-off system - for mechanical engine control



Key to diagram:

		Coordinates
B45	Coolant temperature sensor	3-O-17
DI	Warning device diode PCB.....	5-I-19
H41	Reversing horn	5-I-19
H46	Air filter maintenance signal light.....	3-I-18
H50	Diesel engine oil pressure signal light	3-I-18
K110	Horn relay	5-I-19
P7	Fuel tank level indicator	3-I-18
P8	Engine temperature indicator	3-I-18
R35	Fuel level potentiometer	5-O-16
Z34	Coolant temperature / Actual value function switch	3-O-17
Z42	Function switch / Diesel engine oil pressure	3-O-18
Z69	Function switch / Air filter maintenance	2-O-19

Measured value table:

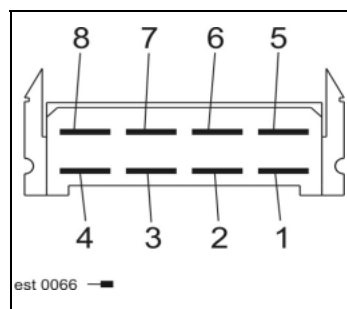
Item	Component	Measured value	Remark
K110	Remote control relay	85±7 Ω	(Pin 85 - Pin 86)
		20 A	(Pin 30 - Pin 87a)
		40 A	(Pin 30 - Pin 87)

Description of function:

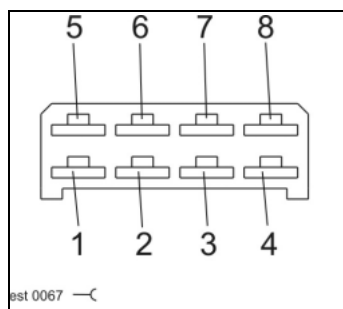
Coolant overtemperature warning	In case of coolant overtemperature, the coolant temperature actual value function switch (Z34) actuates the horn (H41) via relay (K110).
Air filter maintenance warning	The earth signal of the vacuum switch (Z69) is switched to the air filter maintenance signal light H46 in the vehicle information unit and in parallel via the diode PCB (DI) to the transducer K58. (see diagram 25)
Engine oil pressure warning	The earth signal of the oil pressure switch (Z42) is switched to the diesel engine oil pressure signal light H50 in the vehicle information unit and in parallel via the diode PCB (DI) to the transducer K58. (see diagram 25)

Connector pin assignment:

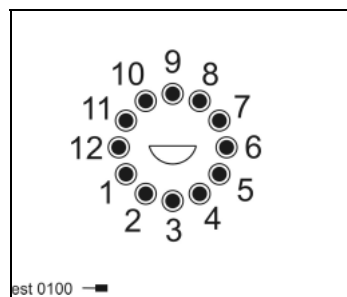
Connector M, K, O, P, R



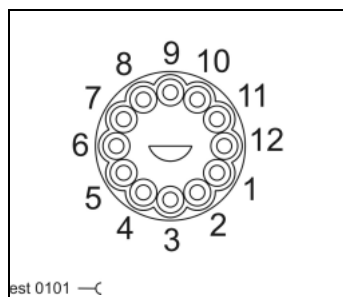
Socket M, K, O, P, R



Connector RO, WS



Socket RO, WS

**Connections list**

Connector	mm ²	Colour
M -1	0.5	wh/bk
M -6	2.5	br
K -1	0.5	gn
K -3	0.5	bl/bk
K -6	0.75	br/rd
K -8	1.5	bk
K110 -30	1.5	br
K110 -85	1.5	br/ye
K110 -86	1.5	bk/ye
K110 -87	1.5	br/ye
O -2	1.5	br/ye
O -3	0.5	gn
O -5	0.75	br/rd
O -7	0.5	wh/bk
P -4	1.5	bk/ye
P -5	1.5	br/ye
R -6	0.5	bl/bk

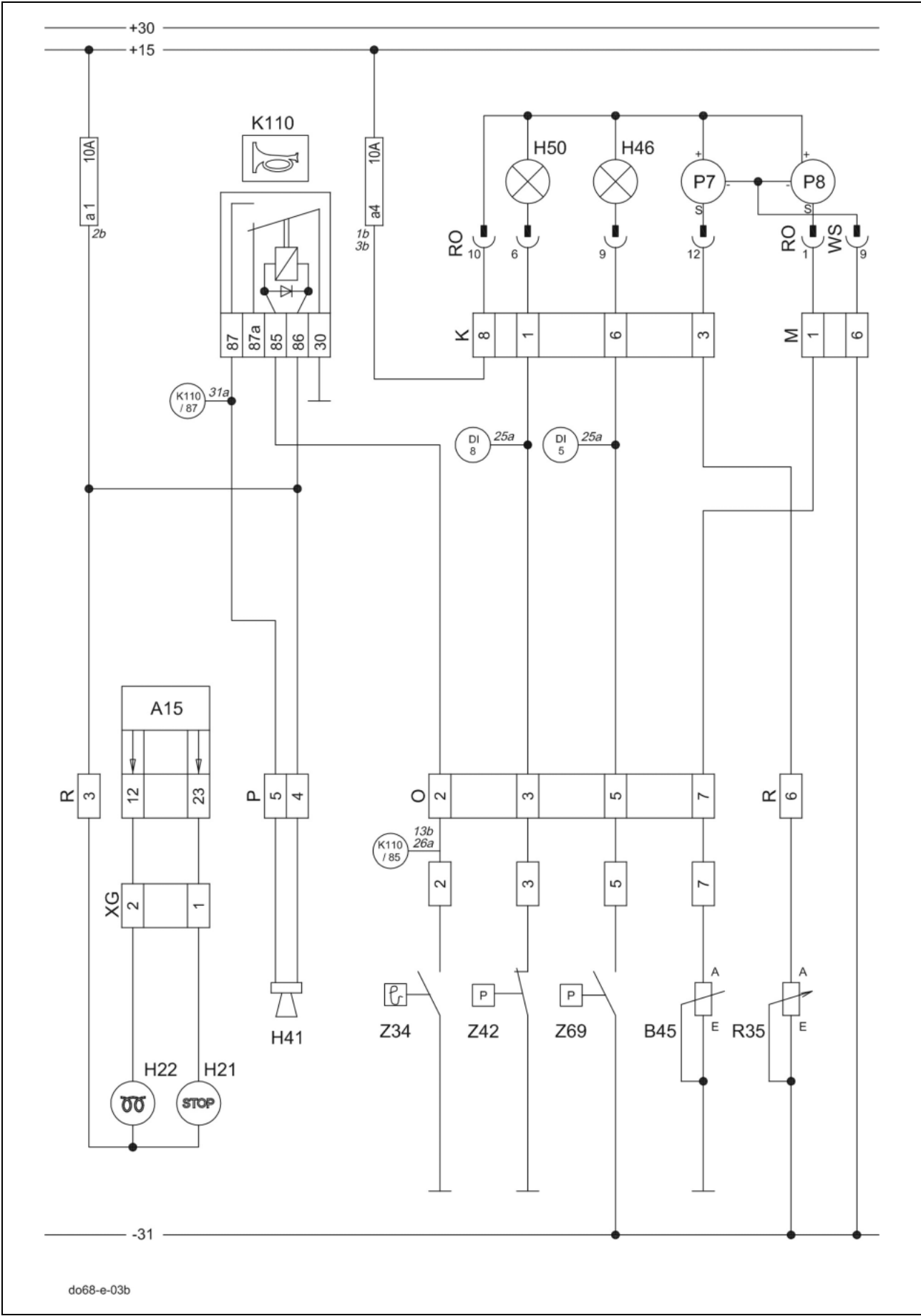
Connector	mm ²	Colour
RO -1	0.5	wh/bk
RO -6	0.5	gn
RO -9	0.75	br/rd
RO -10	1.5	bk
RO -12	0.5	bl/bk
WS -9	1.5	br

3b

Diesel engine cut-off system

- for electronic engine control (CAT)

03b Diesel engine cut-off system - for electronic engine control (CAT)



Key to diagram:

		Coordinates
A15	Electronic engine control module	3-q-17
B45	Coolant temperature sensor	3-O-17
DI	Warning device diode PCB.....	5-l-19
H21	Diesel engine STOP signal light	3-J-17
H22	Diesel engine diagnosis signal light (cold start)	3-J-17
H41	Reversing horn	5-l-19
H46	Air filter maintenance signal light.....	3-l-18
H50	Diesel engine oil pressure signal light	3-l-18
K110	Horn relay	5-l-19
P7	Fuel tank level indicator	3-l-18
P8	Engine temperature indicator	3-l-18
R35	Fuel level potentiometer	5-O-16
XG	Engine wiring loom / main wiring loom connector	4-O-19
Z34	Coolant temperature / Actual value function switch	3-O-17
Z42	Function switch / Diesel engine oil pressure	3-O-18
Z69	Function switch / Air filter maintenance	2-O-19



Measured value table:

Item	Component	Measured value	Remark
K110	Remote control relay	85±7 Ω 20 A 40 A	(Pin 85 - Pin 86) (Pin 30 - Pin 87a) (Pin 30 - Pin 87)

Description of function:

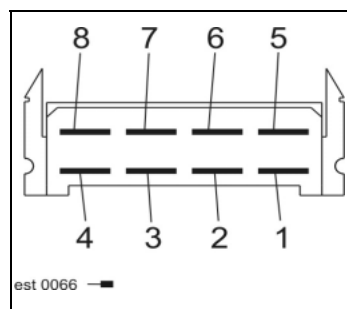
Coolant overtemperature warning	In case of coolant overtemperature, the coolant temperature actual value function switch (Z34) actuates the horn (H41) via relay (K110).
Air filter maintenance warning	The earth signal of the vacuum switch (Z69) is switched to the air filter maintenance signal light H46 in the vehicle information unit and in parallel via the diode PCB (DI) to the transducer K58. (see diagram 25)
Engine oil pressure warning	The earth signal of the oil pressure switch (Z42) is switched to the diesel engine oil pressure signal light H50 in the vehicle information unit and in parallel via the diode PCB (DI) to the transducer K58. (see diagram 25)
Diagnosis	The signal lights H21 and H22 provide information about operating conditions. They may also be used for engine error diagnosis.

Function of signal lights: Caterpillar engine diagnosis

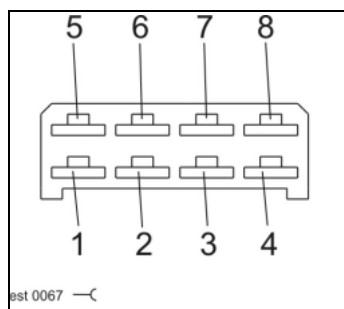
Engine operating status	H22 - yellow 	H21 - red 	Status
Ignition On	Both lamps light up for 2 seconds (Lamp test)		OK
Prior to starting procedure (pre-heating)	Lamp lights up as long as pre-heating is active.	Off	OK
Prior to starting procedure (pre-heating finished)	Off	Off	OK
During starting procedure	Off	Off	OK
	Off	On	Oil pressure too low!
	Off	Off	OK
	Off	On	Oil pressure too low!
	Flashing	Off	Warning: Oil pressure, cooling water temperature, air inlet temperature, fuel temperature, engine power limiting active
	Flashing	Flashing	Warning: Oil pressure, cooling water temperature, air inlet temperature, fuel temperature, engine power limiting active
Engine running	On	Off	Aktive electronics fault
	On	On	Aktive electronics fault and insufficient oil pressure
	On	Flashing	Aktive electronics fault and engine power limiting active due to insufficient oil pressure
	Flashing	On	Warning: Oil pressure, cooling water temperature, air inlet temperature, fuel temperature, engine power limiting active

Connector pin assignment:

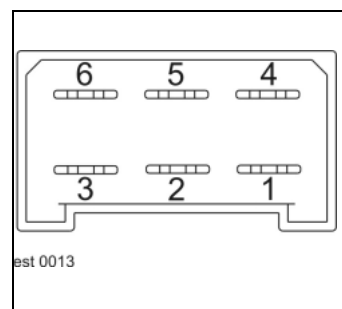
Connector M, K, O, P, R



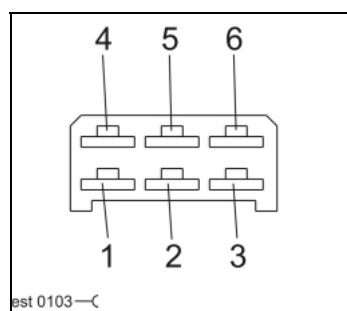
Socket M, K, O, P, R



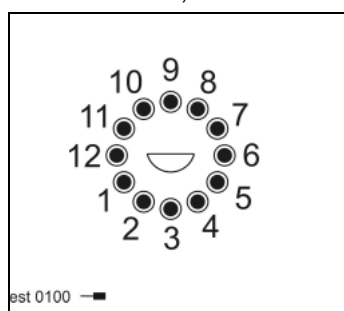
Connector XG



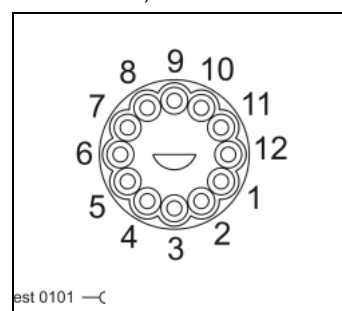
Socket XG



Connector RO, WS



Socket RO, WS

**Connections list**

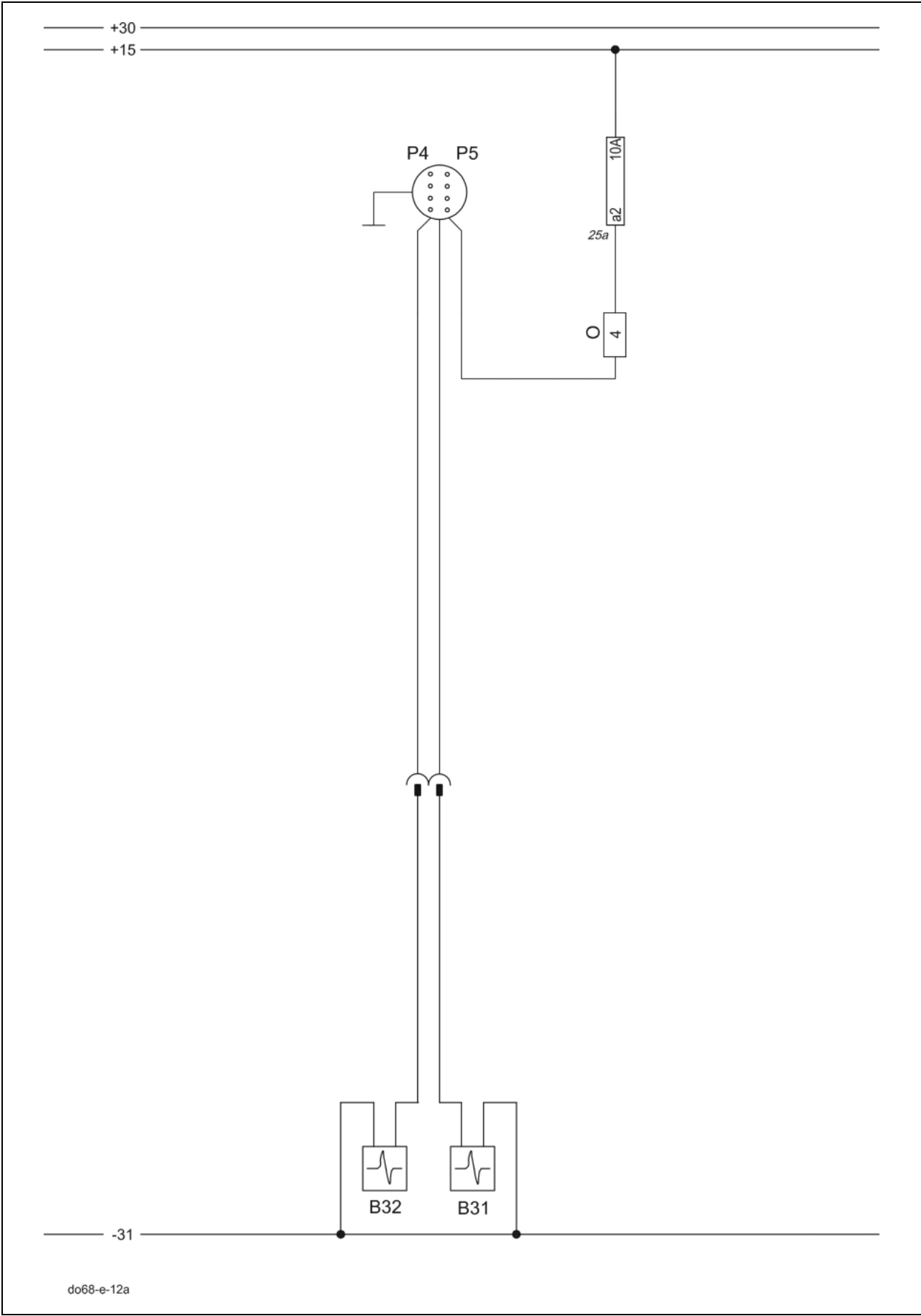
Connector	mm ²	Colour
M -1	0.5	wh/bk
M -6	2.5	br
K -1	0.5	gn
K -3	0.5	bl/bk
K -6	0.75	br/rd
K -8	1.5	bk
K110 -30	1.5	br
K110 -85	1.5	br/ye
K110 -86	1.5	bk/ye
K110 -87	1.5	br/ye
O -2	1.5	br/ye
O -3	0.5	gn
O -5	0.75	br/rd
O -7	0.5	wh/bk
P -4	1.5	bk/ye
P -5	1.5	br/ye
R -3	1.5	bk/ye
R -6	0.5	bl/bk

Connector	mm ²	Colour
RO -1	0.5	wh/bk
RO -6	0.5	gn
RO -9	0.75	br/rd
RO -10	1.5	bk
RO -12	0.5	bl/bk
WS -9	1.5	br
XG -1	1.0	wh
XG -2	1.0	ye

12a

Performance monitor

12a Performance monitor



Key to diagram:		Coordinates
B31	Performance monitor cleaning sensor	6-S-18
B32	Performance monitor residual separation sensor	3-T-18
P4	Separation performance monitor indicator	3-I-17
P5	Performance monitor cleaning indicator	3-I-17

Description of function:

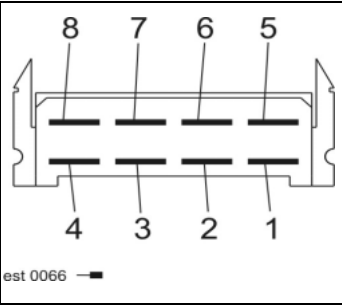
The performance monitor function serves for machine adjustment and monitoring.

A piezo crystal plate with an integrated amplifier is provided below the sensor plate. The sensitivity can be varied as a function of the crop, using a three-step switch on the amplifier.

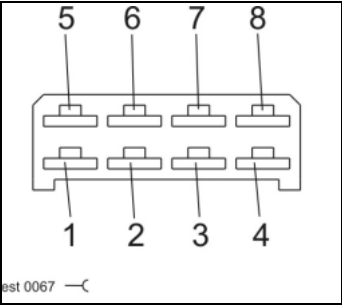
When grains fall on the sensor (B31/B32), the vibrations move the microscopic piezo crystals and deform them. In this process, the crystals deliver a voltage. This voltage is amplified and makes a number of LEDs in the indicator light up as a function of the voltage (quantity of grains). Minor vibrations caused by straw parts are filtered out.

Connector pin assignment:

Connector O



Socket O



Connections list

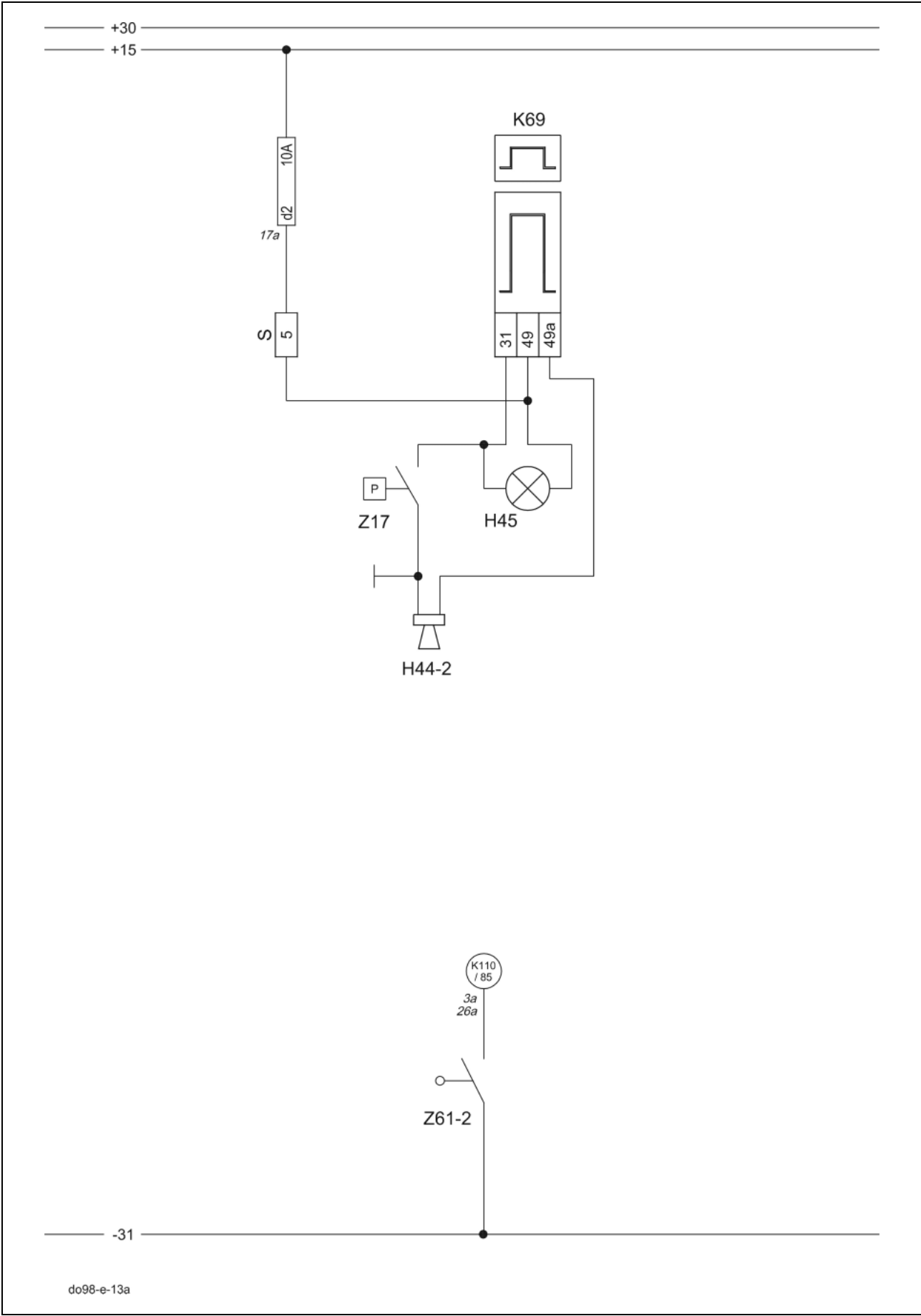
Connector	mm ²	Colour
O -4	1.5	bk/or

13a

Straw collector

- for mechanical engine control

13a Straw collector - for mechanical engine control



Key to diagram:

		Coordinates
H45	Warning light.....	4-J-19
H44-2	Buzzer / straw collector signalling device	4-J-19
K69	Pulse relay / straw collector	4-J-19
K110	Horn relay	5-I-19
Z17	Actual Value Function Switch Straw collector	4-J-19
Z61-2	Actual Value Function Switch Straw collector	3-U-18

Measured value table:

Item	Component	Measured value	Remark
Z17	Oil pressure switch	30 bar	Normally open contact

Description of function:

Straw collector full indicator

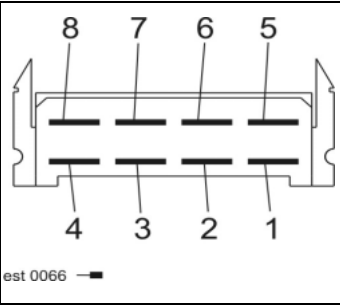
When the straw collector is full, the straw collector switch (Z61-2) closes and activates the horn (H41) via relay K110.

Warning – Straw collector open

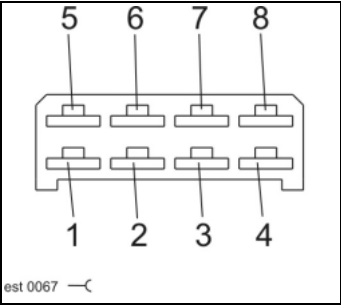
When the straw collector is open, the straw collector switch (Z17) closes and activates warning light H45.
The buzzer / straw collector signalling device (H44-2) is activated in parallel with this function via pulse relay K69.

Connector pin assignment:

Connector S



Socket S



Connections list

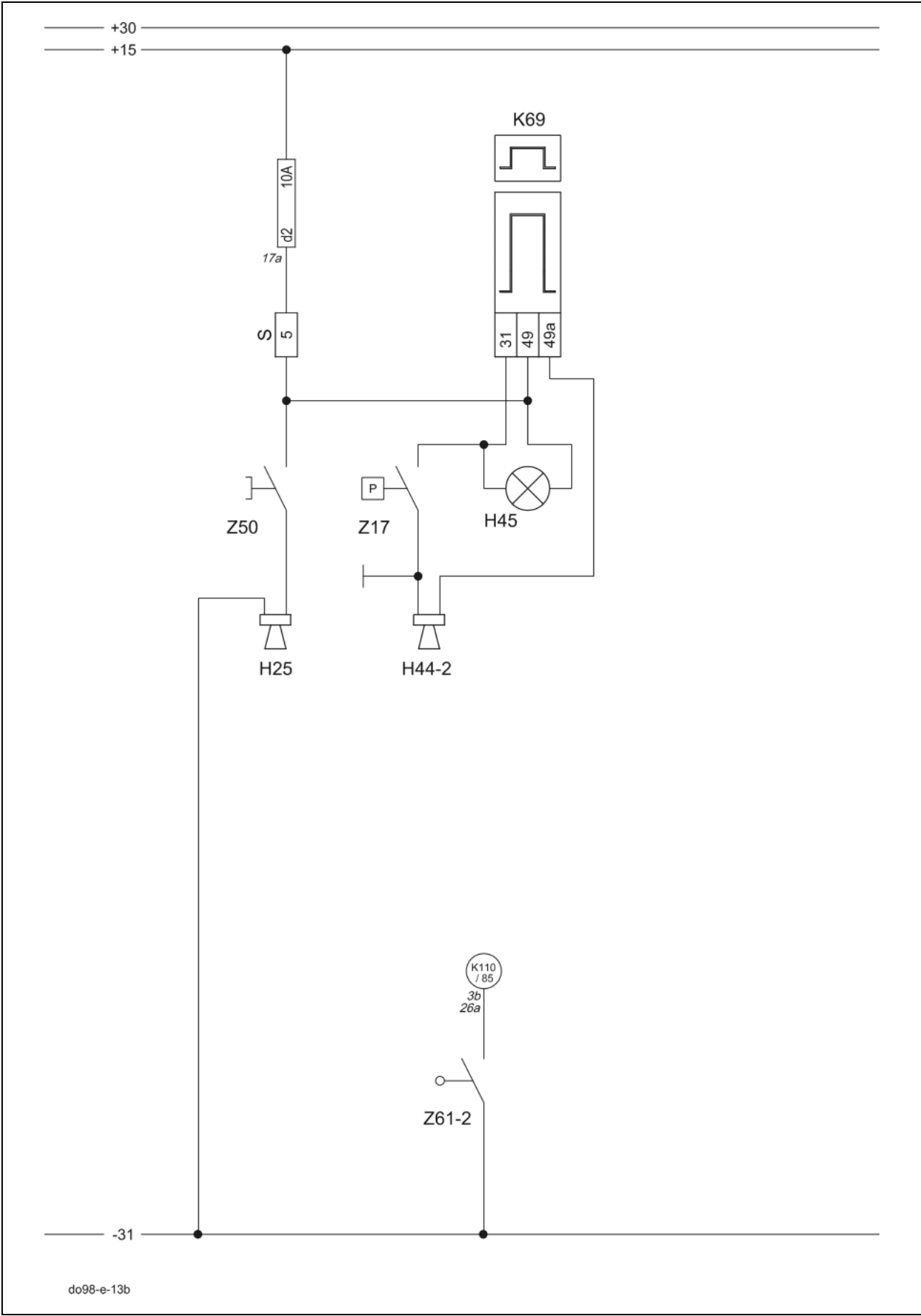
Connector	mm ²	Colour
S -5	1.5	bk/rd

13b

Straw collector / Reversing horn

- for electronic engine control (CAT)

13b Straw collector / Reversing horn - for electronic engine control (CAT)



Key to diagram:

Coordinates

H25	Reversing horn signalling device.....	6-S-20
H45	Warning light.....	4-J-19
H44-2	Buzzer / straw collector signalling device	4-J-19
K69	Pulse relay / straw collector	4-J-19
K110	Horn relay	5-I-19
Z17	Actual Value Function Switch Straw collector	4-J-19
Z50	Function switch Reversing horn actual value	5-I-17
Z61-2	Actual Value Function Switch Straw collector	3-U-18

Measured value table:

Item	Component	Measured value	Remark
Z17	Oil pressure switch	30 bar	Normally open contact

Description of function:

Straw collector full indicator

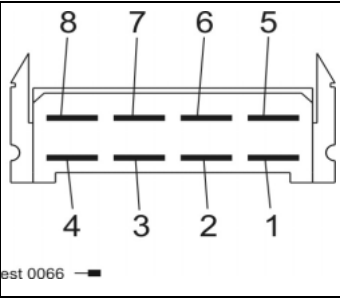
When the straw collector is full, the straw collector switch (Z61-2) closes and activates the horn (H41) via relay K110.

Warning – Straw collector open

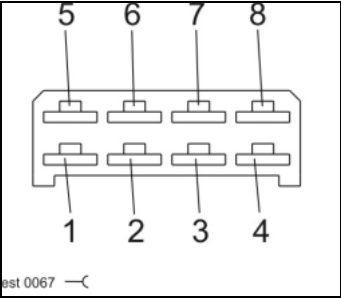
When the straw collector is open, the straw collector switch (Z17) closes and activates warning light H45.
The buzzer / straw collector signalling device (H44-2) is activated in parallel with this function via pulse relay K69.

Connector pin assignment:

Connector S



Socket S



Connections list

Connector	mm ²	Colour
S -5	1.5	bk/rd

17a

**Front attachment drive,
Reverser drive**

Key to diagram:



K78	Reversing relay	3-I-17
K79	Reversing relay	3-I-17
M24	Front attachment reverse motor	6-G-16
S55	Front attachment ON switch	4-J-19
S57	Front attachment reverse switch	3-I-17
S58	Stop / reverse front attachment switch (only machines without speed monitoring)	4-J-19
XK	Connector in wiring loom	5-I-19

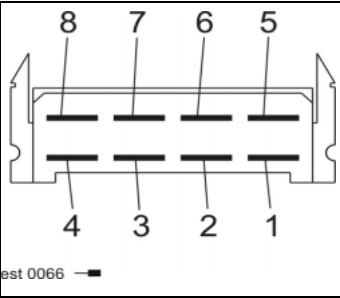
Item	Component	Measured value	Remark
K78	Remote control relay	85±7 Ω	(Pin 85 - Pin 86)
K79		20 A	(Pin 30 - Pin 87a)
		40 A	(Pin 30 - Pin 87)

Description of function:

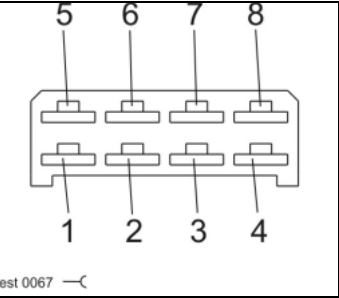
Reversing safety circuit	<p>When engaging the front attachment, relay K78 is also actuated in parallel and cuts the power supply to the front attachment reverse switch S57. Reversing therefore is possible only with the front attachment disengaged. Since relay K79 is actuated by pin 61 of generator G2, reversing is possible only while the diesel engine is running.</p>
Reversing circuit (electric)	<p>When reversing, the electric motor M24 is activated by switch S57.</p> <p>Important! Operating time above 10 seconds should be avoided since the electric motor might be overloaded.</p> <p>Note: Power supply of pushbutton S57 is provided only if relays K79 and K78 - Reversing safety circuit – are actuated.</p> <p>The switches S55 and S58 are identical, but have a differing designation. On machines without speed monitoring, cabling is according to diagram 17a (S58), whereas on machines with speed monitoring, cabling is according to diagram 25a (S55).</p>

Connector pin assignment:

Connector S



Socket S



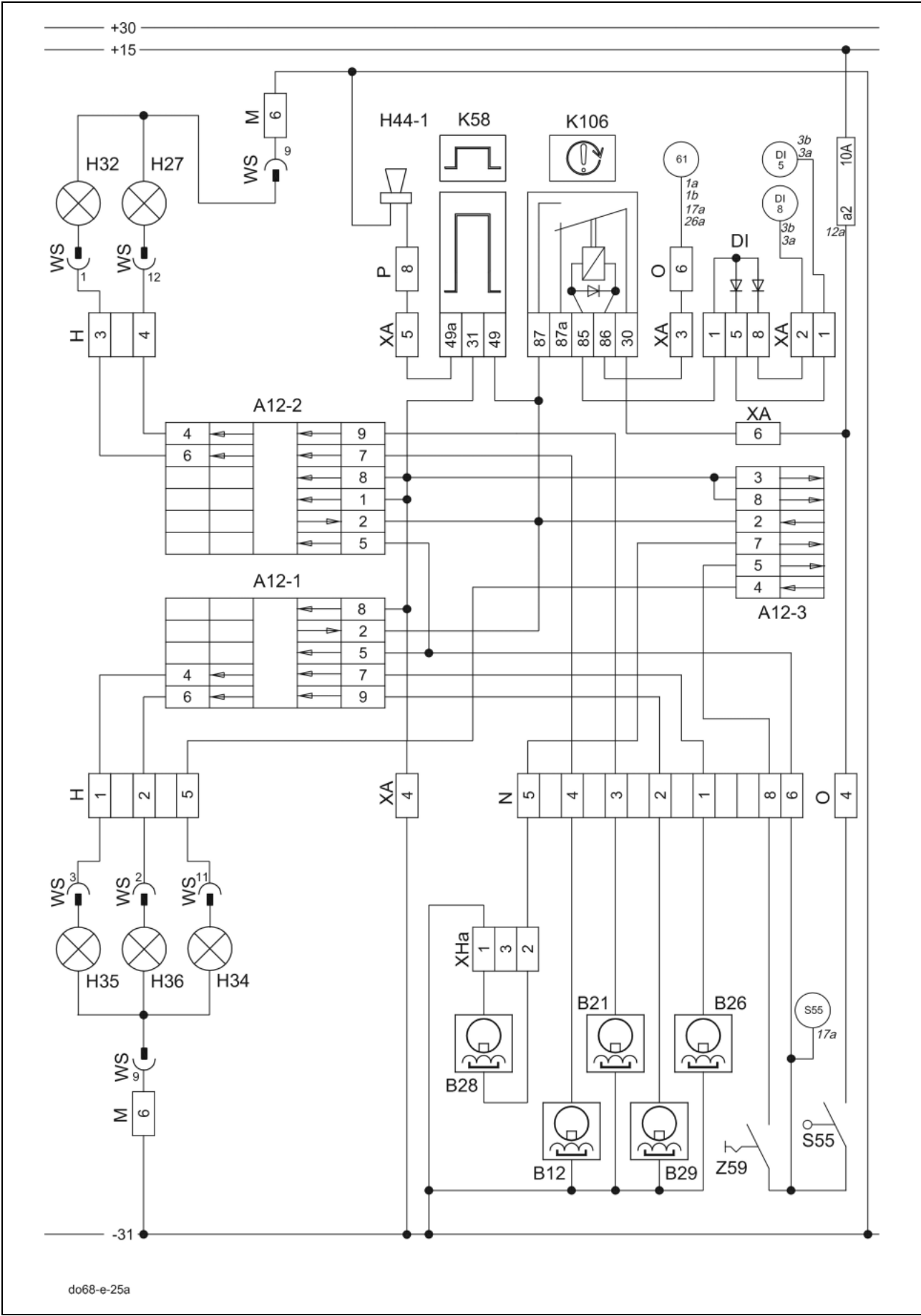
Connections list

Connector	mm ²	Colour
S -6	1.5	bk/rd

25a

Speed monitor

25a Speed monitor



Key to diagram:

		Coordinates
A12-1	Speed monitor / straw walker, returns elevator module	5-I-19
A12-2	Speed monitor / feed rake conveyor, grain elevator module	5-I-19
A12-3	Speed monitor / straw chopper module	5-I-19
B12	Feed rake conveyor speed sensor	5-I-16
B21	Grain elevator speed sensor	3-L-16
B26	Straw walker speed sensor	4-R-19
B28	Straw chopper speed sensor	6-U-19
B29	Returns speed sensor	4-K-16
DI	Warning device diode PCB	5-I-19
H27	Feeder housing slip / standstill signal light	3-I-18
H32	Grain elevator slip / standstill signal light	3-I-18
H34	Straw chopper slip / standstill signal light	3-I-18
H35	Straw walker slip / standstill signal light	3-I-18
H36	Returns elevator slip / standstill signal light	3-I-18
H44-1	Signalling device / buzzer	4-I-16
K58	Pulse relay / speed monitoring	5-I-19
K106	Relay / speed monitoring	5-I-19
S55	Front attachment ON switch	4-J-19
XA	Central terminal compartment connector / to speed monitoring wiring loom	5-I-19
XHa	Wiring loom connector	5-S-19
Z59	Straw chopper baffle plate position actual value switch	5-T-19

Measured value table:

Item	Component	Measured value	Remark
B12 B21 B26 B28 B29	Sensor	1000-1200 Ω	inductive
K106	Remote control relay	85±7 Ω 20 A 40 A	(Pin 85 - Pin 86) (Pin 30 - Pin 87a) (Pin 30 - Pin 87)

Description of function:

The frequencies of the individual sensors are processed by the speed monitoring modules A12. If the allowed slip values are exceeded, the module activates the corresponding signal lights and the buzzer as an acoustic warning. The alarm signals are activated in a pulsed way by relay K58 (see diagram 3a and/or 3b).

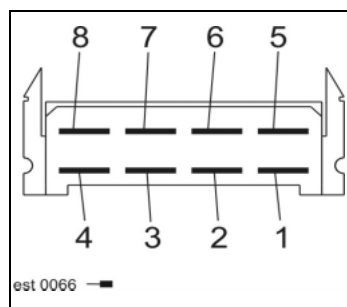
Important! The chopper speed monitoring is active only if switch Z59 is closed (straw chopper in working position).

Speed monitor

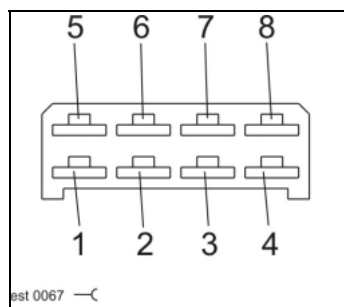
	SET speeds rpm	Min. speeds rpm
Straw walker	220	174
Returns elevator	350	230
Grain elevator	350	260
Feed rake	520	385
Straw chopper		
2 cams - grain	3270	2379
4 cams - maize	1890	1190

Connector pin assignment:

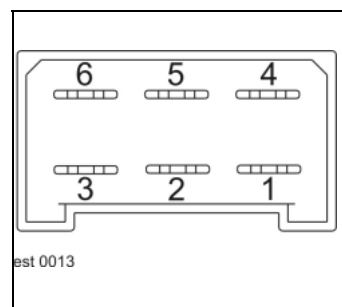
Connector H, N, O



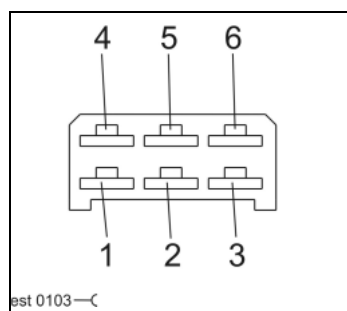
Socket H, N, O



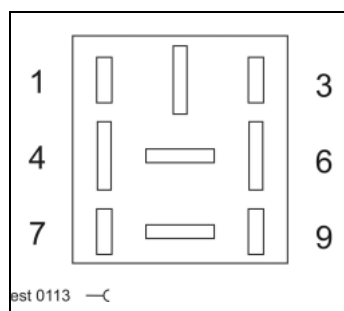
Connector XA



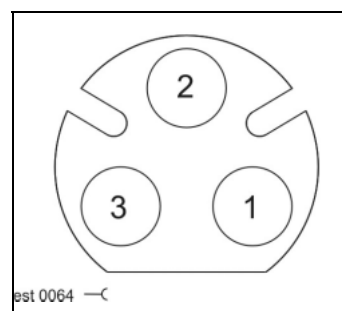
Socket XA



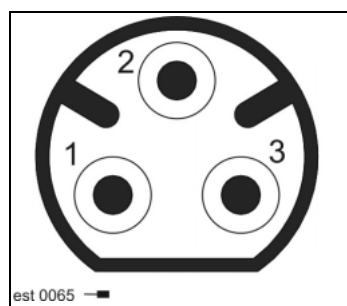
Socket A12



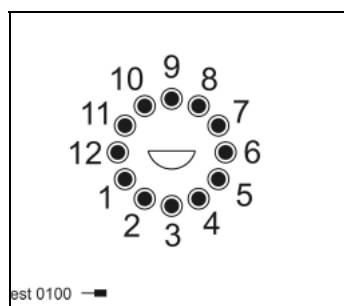
Socket XHa



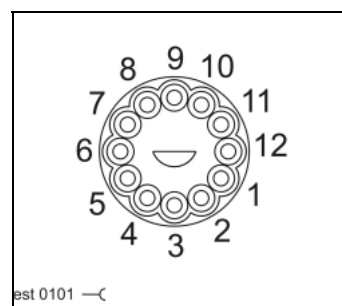
Connector XHa



Connector WS



Socket WS

**Connections list**

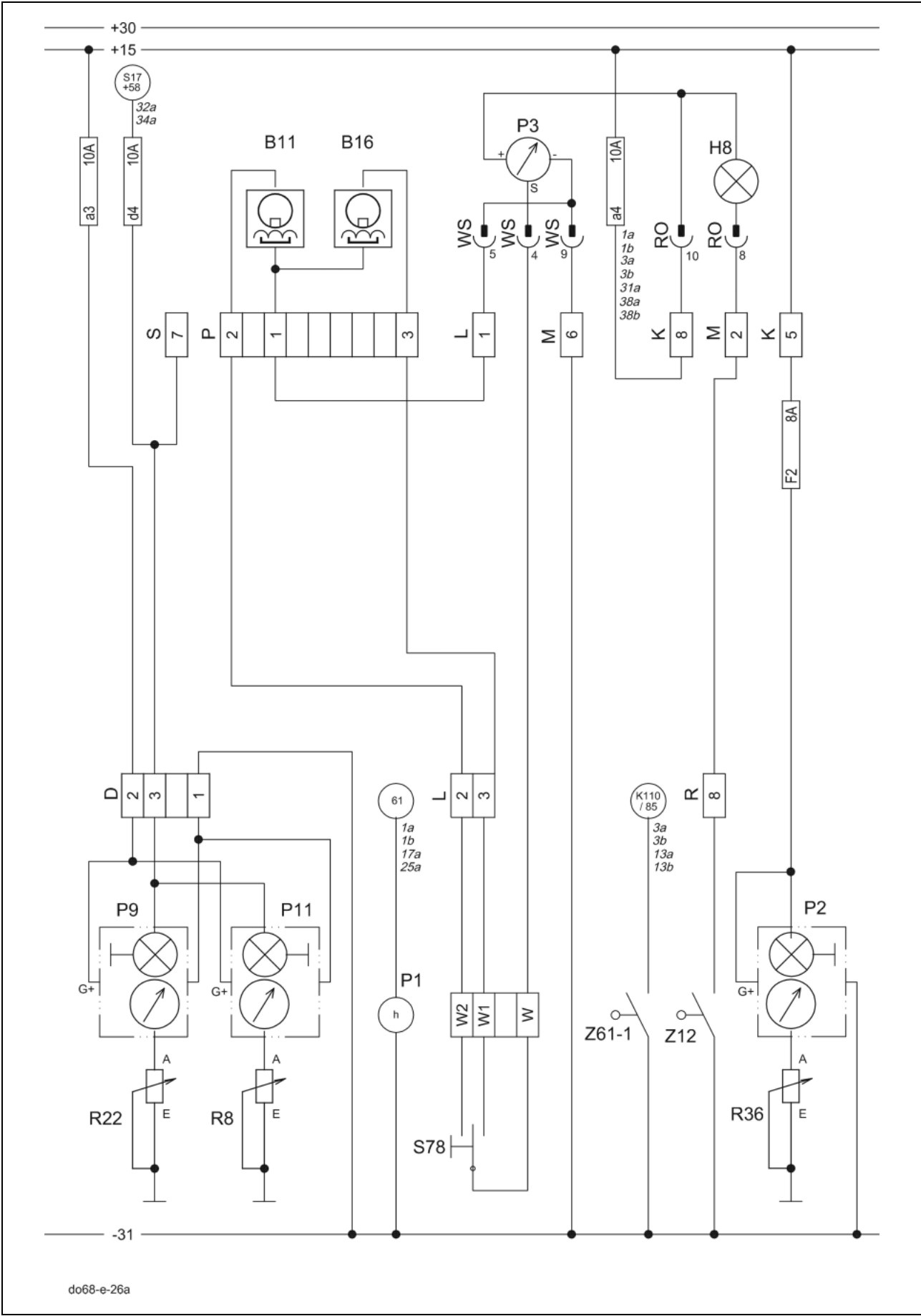
Connector	mm ²	Colour
H -1	0.75	wh/gn
H -2	1.0	gn/ye
H -3	0.75	bl/gn
H -4	0.75	gn/bk
H -5	0.75	gn/rd
M -6	2.5	br
N -1	1	gn/bl
N -2	1	gn/rd
N -3	1	gn/br
N -4	1	gn/wh
N -5	1	gn/bk
N -6	1	bk/ye
N -8	1	bk/rd

Connector	mm ²	Colour
O -4	1.5	bk/or
O -6	0.5	bl
P -8	1	vi
XA -1	0.75	br/rd
XA -2	0.75	gn
XA -3	0.75	bl
XA -4	1	br
XA -5	1	vi
XA -6	1	bk/or

26a

Machine monitor

26a Machine monitor



Key to diagram:

		Coordinates
B11	Threshing drum speed sensor	5-K-19
B16	Transmission speed sensor (ground speed)	7-J-18
D	Central terminal compartment / indicator wiring loom connector	5-I-19
H8	Parking brake activated signal light	3-I-18
K110	Horn relay	5-I-19
P1	Hour meter indicator	3-I-17
P2	Display indicator (wheel position)	3-h-17
P3	Engine speed indicator	3-I-18
P9	Cutterbar spring pre-stress indicator	3-h-17
P11	Pre-set cutting height control indicator	3-h-17
R8	Feed rake conveyor position potentiometer (actual value)	5-J-16
R22	Cutterbar spring pre-stress potentiometer (actual value)	7-I-17
R36	Wheel angle potentiometer.....	7-R-20
S78	Threshing drum / gearbox speed changeover switch	3-I-18
Z12	Parking brake switch.....	4-J-17
Z61-1	Straw jam warning switch (straw walker house).....	3-S-18

Measured value table:

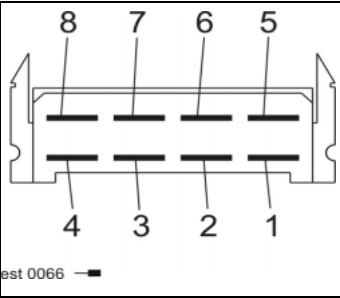
Item	Component	Measured value	Remark
B11 B16	Sensor	1000 - 1200 Ω	inductive
R8 R22 R36	Potentiometer	10 - 190 Ω	

Description of function:

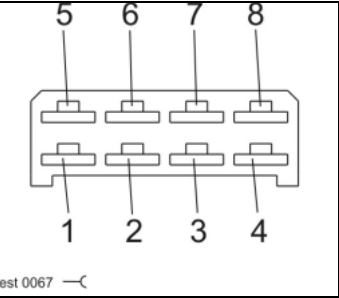
Speed indicator	The speed indicator (P3) indicates the threshing drum or the gearbox input speed. The desired information is selected with the threshing drum / gearbox speed changeover switch (S78).
Pre-set cutting height control / cutterbar spring pre-stress indicator	The signals from the feed rake conveyor position (R8) and cutterbar spring pre-stress (R22) potentiometers are displayed by indicators (P9) and (P11).
Straw jam warning	The earth signal of the straw jam warning switch (straw walker house) Z61-1 is transmitted to the horn relay K110 and activates the horn H41.
Half-tracks steering position display	The signal of wheel angle potentiometer R36 is displayed in indicator P2.

Connector pin assignment:

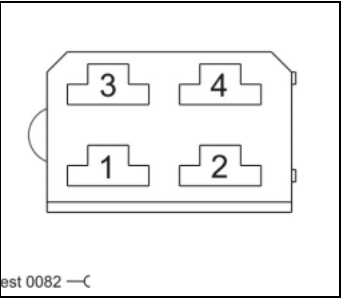
Connector K, M, P, R, S



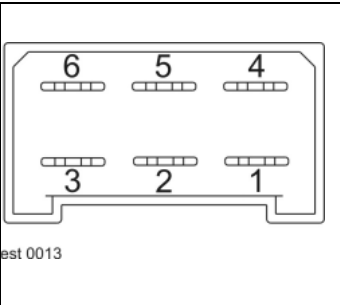
Socket K, M, P, R, S



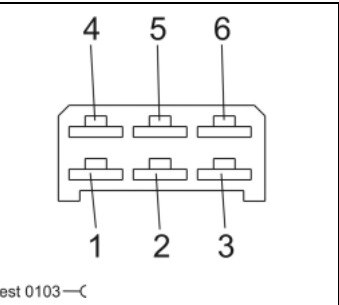
Socket D



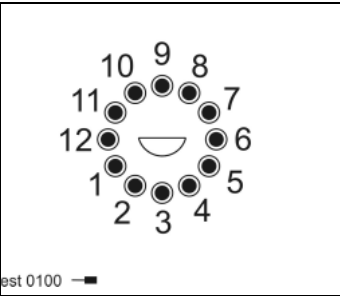
Connector L



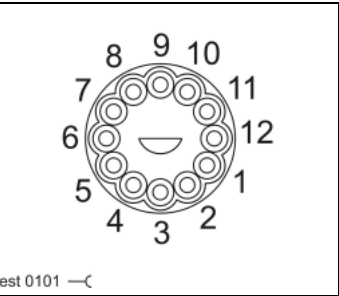
Socket L



Connector RO, WS



Socket RO, WS



Connections list

Connector	mm ²	Colour
D -1	1.5	br
D -2	1.5	bk
D -3	1.5	gr
K -5	6	bk
K -8	1.5	bk
L -1	0.75	bl/ye
L -2	0.75	bk/gn/rd
L -3	0.75	bk/gn/wh
M -2	0.75	br/wh
M -6	2.5	br

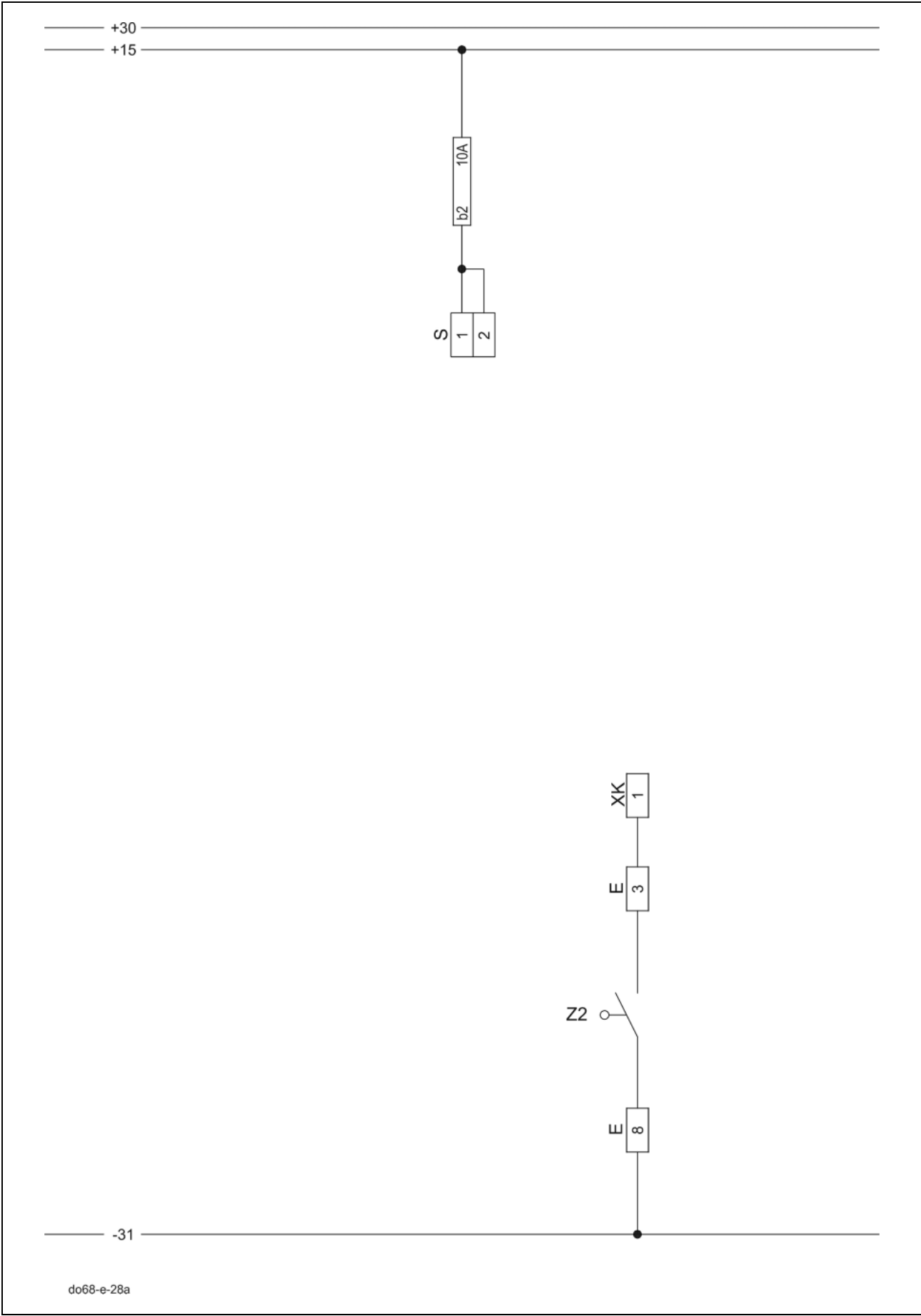
Connector	mm ²	Colour
R -8	0.75	br/wh
S -7	1.5	gr

28a

AUTOPILOT

(Connection)

28a AUTOPILOT - (connection)



Key to diagram:

Coordinates

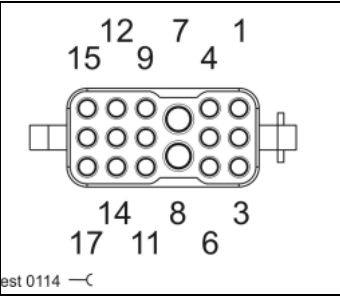
Z2

Ladder safety device actual value function switch 2-I-19

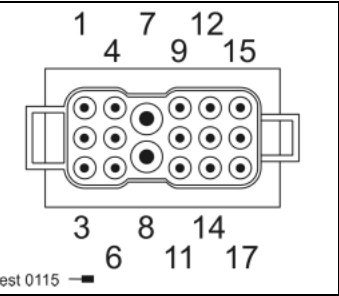
Description of function: None

Connector pin assignment:

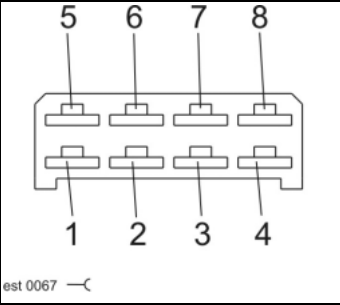
Socket E



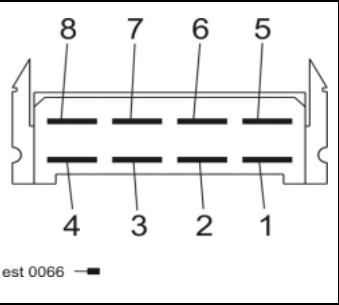
Connector E



Socket S



Connector S



Connections list

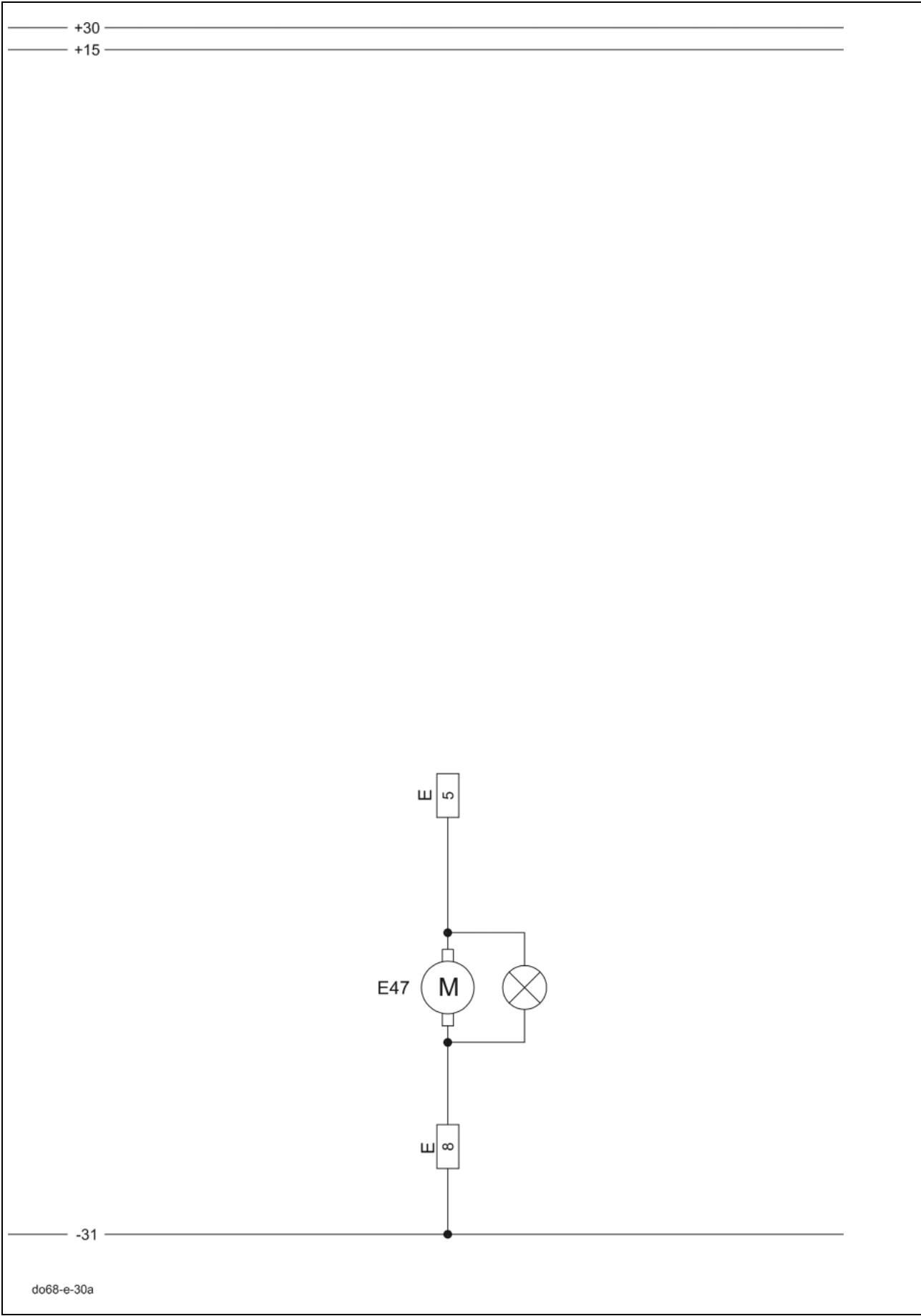
Connector	mm ²	Colour
E -3	0.75	br/vi
E -8	4	br
S -1	1.5	bk/wh
S -2	1.5	bk/wh

30a

Warning beacon

(Connection)

30a Warning beacon - (connection)

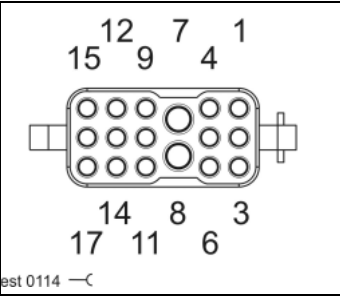


Key to diagram:		Coordinates
E47	Warning beacon.....	1-J-19

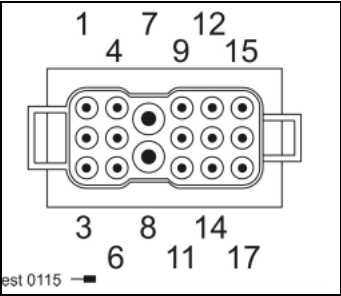
Description of function: None

Connector pin assignment:

Socket E



Connector E



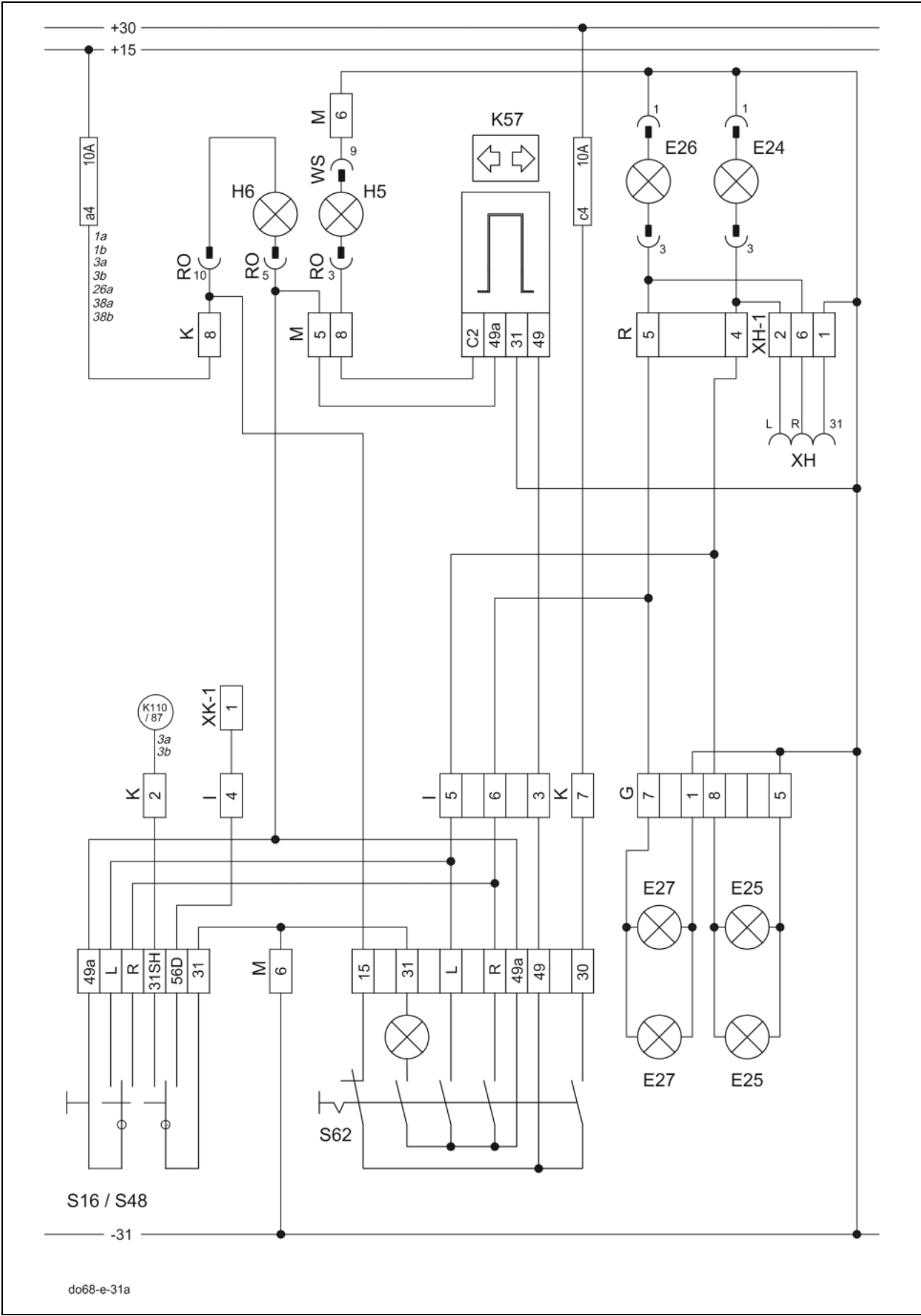
Connections list

Connector	mm ²	Colour
E -5	1.5	wh/vi
E -8	4	br

31a

**Turn flasher light,
Hazard warning flasher**

31a Turn flasher light, Hazard warning flasher



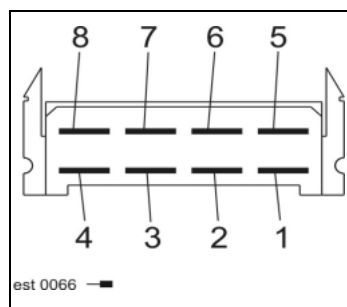
Key to diagram:

		Coordinates
E24	Turn flasher light, rear left.....	5-U-20
E25	Turn flasher light, front left.....	5-h-19
E26	Turn flasher light, rear right.....	5-U-16
E27	Turn flasher light, front right.....	5-h-17
H5	Trailer turn flasher signal light	3-l-18
H6	Vehicle turn flasher signal light.....	3-l-18
K57	Transducer.....	5-l-19
K110	Horn relay	5-l-19
S16	Turn flasher switch.....	3-l-18
S48	Reversing horn switch	3-l-18
S62	Hazard warning flasher switch.....	3-l-18
XH	Trailer lighting socket.....	7-S-19
XH - 1	Wiring loom connector.....	6-R-20
XK - 1	Connector in wiring loom	5-l-19

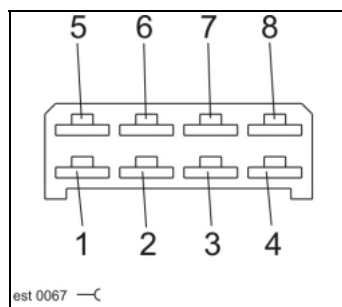
Description of function: None

Connector pin assignment:

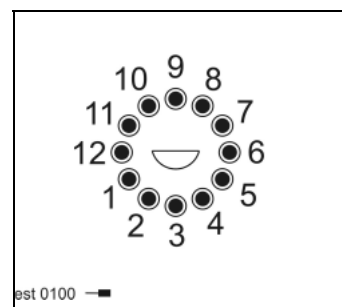
Connector I, K, M,R



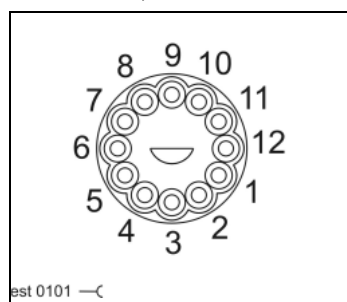
Socket I, K, M,R



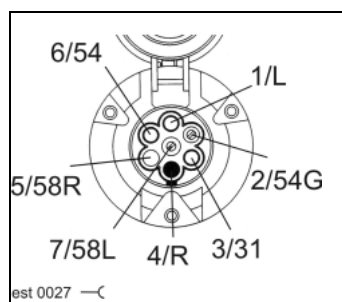
Connector RO, WS



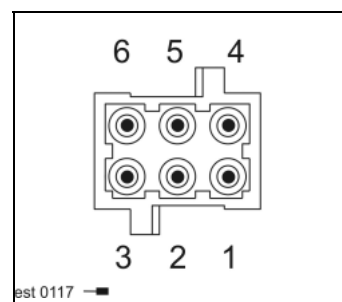
Socket RO, WS



Socket XH



Connector XH - 1



Connections list

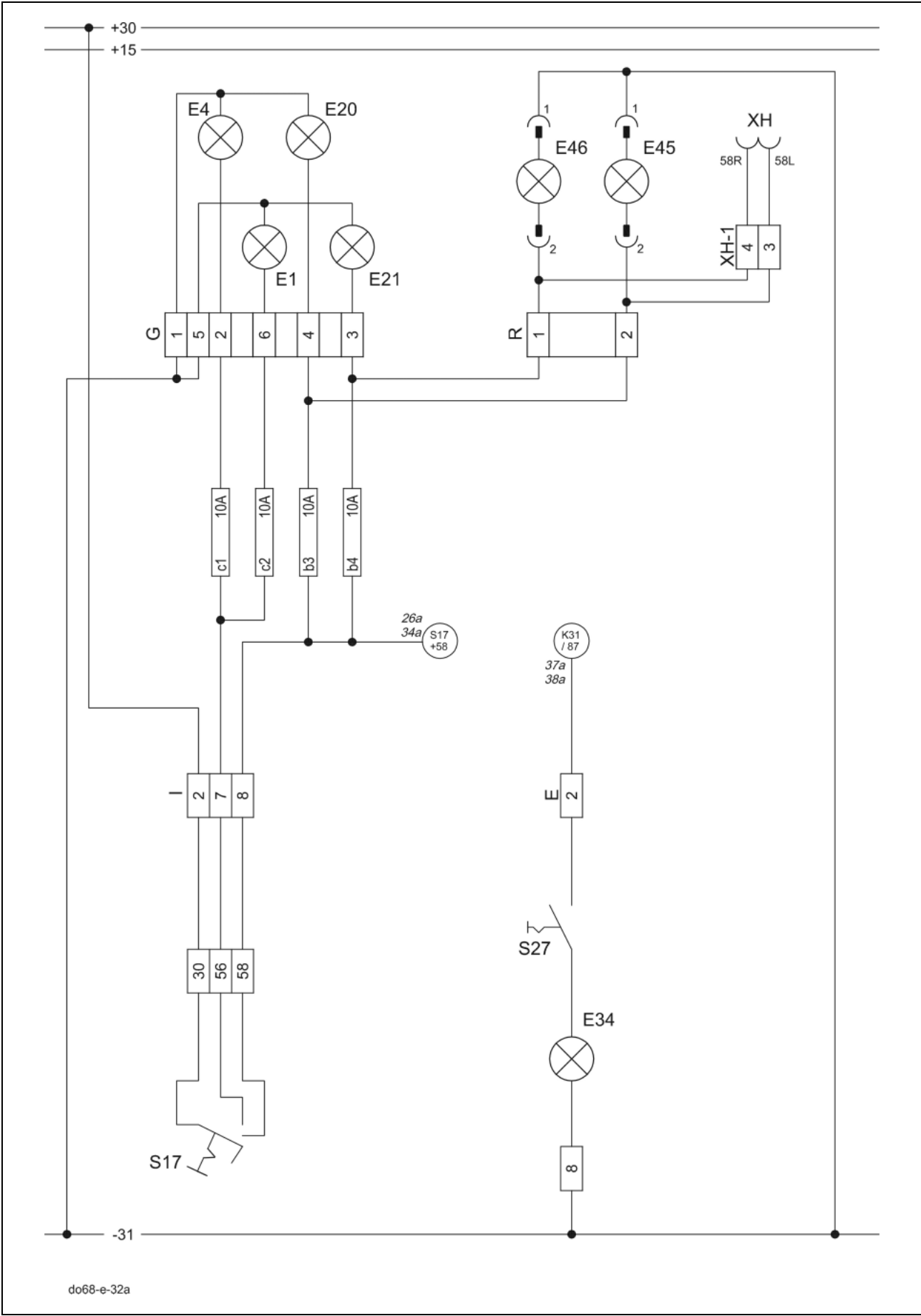
Connector	mm ²	Colour
G -1	2.5	br
G -5	2.5	br
G -7	1.5	bk/gn
G -8	1.5	bk/wh
I -3	2.5	bk/rd
I -4	1.5	bl/bk
I -5	1.5	bk/wh
I -6	1.5	bk/gn
K -2	1.5	br/ye
K -7	1.5	rd
K -8	1.5	bk
M -5	2.5	bk/wh/gn
M -8	0.5	bl/rd
R -4	1.5	bk/wh
R -5	1.5	bk/gn
RO -3	0.5	bl/rd
RO -5	1.5	bk/wh/gn
RO -10	1.5	bk

Connector	mm ²	Colour
WS -9	1.5	br
XH -L	1.5	bk/wh
XH -R	1.5	bk/gn
XH -31	1.5	br

32a

Main lighting circuit, Position light

32a Main lighting circuit, Position light



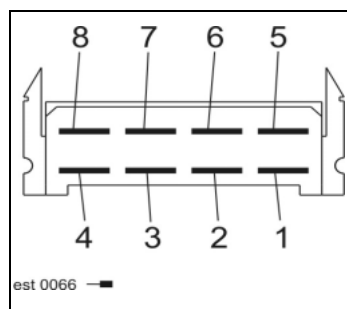
Key to diagram:

		Coordinates
E	Connector to central terminal compartment (cab connection)	5-l-19
E1	Dipped headlights, left	5-h-19
E4	Dipped headlights, right	5-h-17
E20	Side light, front left	5-h-19
E21	Side light, front right	5-h-17
E34	Interior lights	2-l-17
E45	Taillight, left	5-U-20
E46	Taillight, right	5-U-16
K31	Cab relay	5-l-19
S17	Vehicle lighting main switch	3-l-18
S27	Interior lights switch	2-l-17
XH	Trailer lighting socket	7-S-19
XH - 1	Wiring loom connector	6-R-20

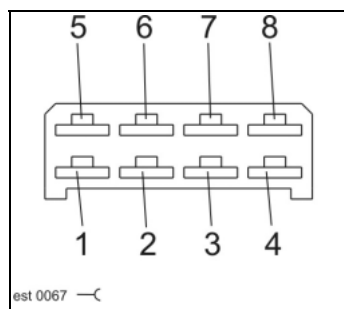
Description of function: None

Connector pin assignment:

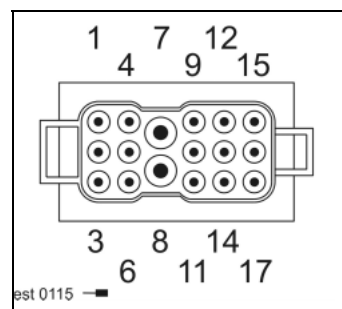
Connector G, I, R



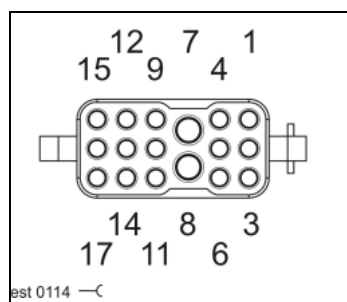
Socket G, I, R



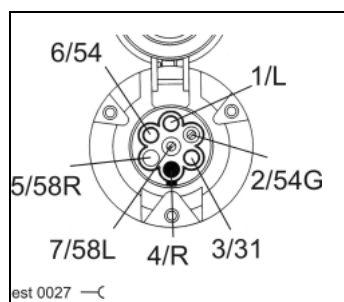
Connector E



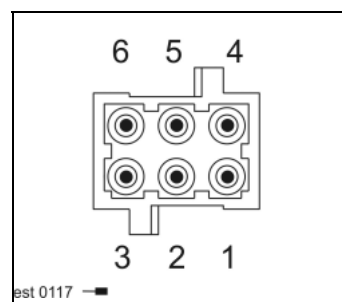
Socket E



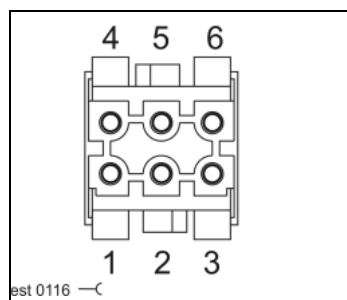
Socket XH



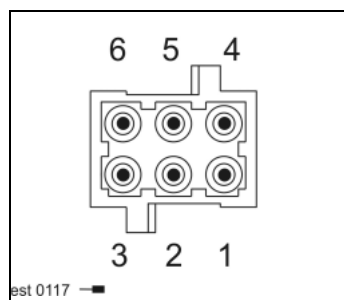
Connector XH - 1



Socket XH - 1



Connector XH - 1



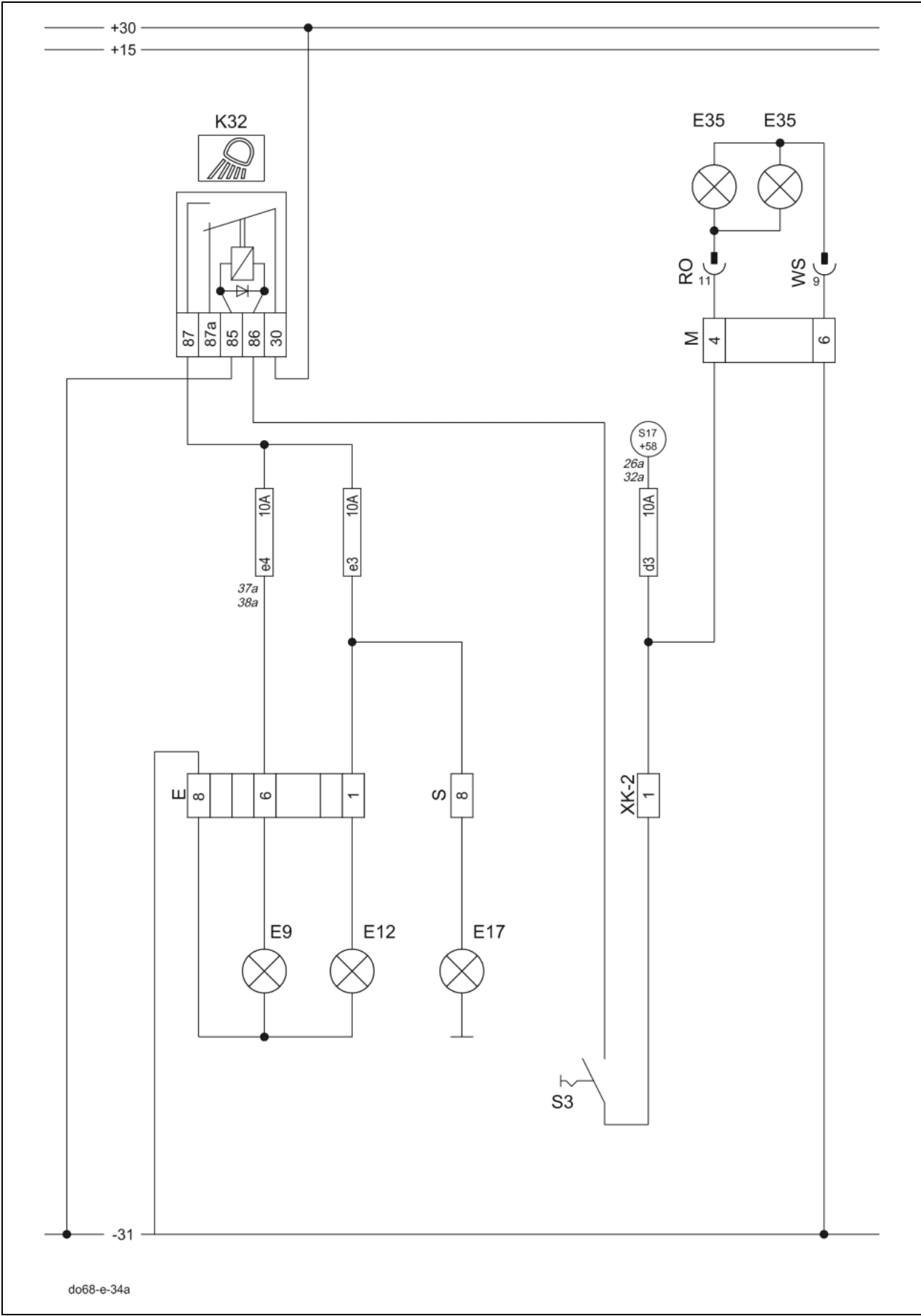
Connections list

Connector	mm ²	Colour
G -1	2.5	br
G -2	1.5	ye
G -3	1.5	gr/bk
G -4		
G -5	2.5	br
G -6	1.5	ye
I -2	6	rd
I -7	2.5	rd/ye
I -8	2.5	gr
R -1	1.5	gr/rd
R -2	1.5	gr/bk

34a

Work lights, Instrument lighting

34a Work lights, Instrument lighting



Key to diagram:

		Coordinates
E	Connector to central terminal compartment (cab connection)	5-l-19
E9	Cab left outside work lights	5-h-19
E12	Cab right outside work lights	5-h-17
E17	Grain tank unloading tube work light	2-K-20
E35	Instrument lighting	
K32	Work lights relay	5-l-19
S3	Work lights main switch	1-h-17
S17	Vehicle lighting main switch	3-l-18
XK -2	Wiring loom connector	5-l-19

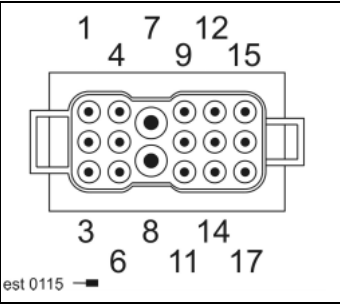
Measured value table:

Item	Component	Measured value	Remark
K32	Remote control relay	85±7 Ω	(Pin 85 - Pin 86)
		20 A	(Pin 30 - Pin 87a)
		40 A	(Pin 30 - Pin 87)

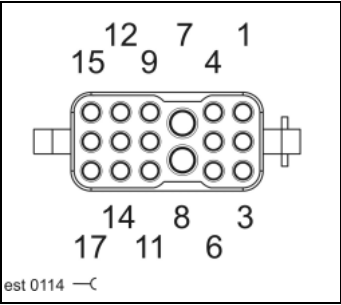
Description of function: None

Connector pin assignment:

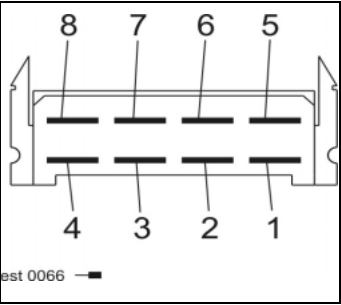
Connector E



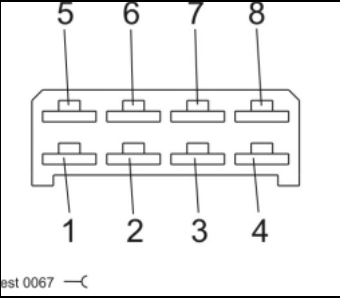
Socket E



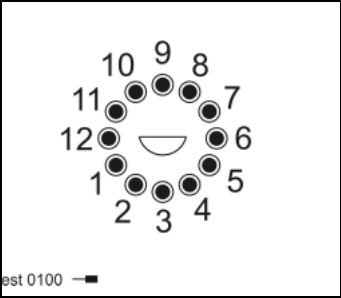
Connector M, S



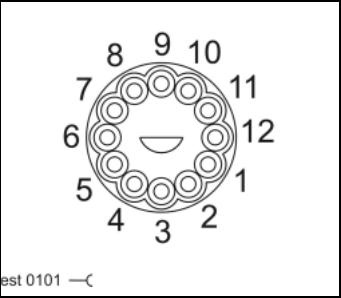
Socket M, S



Connector RO, WS



Socket RO, WS



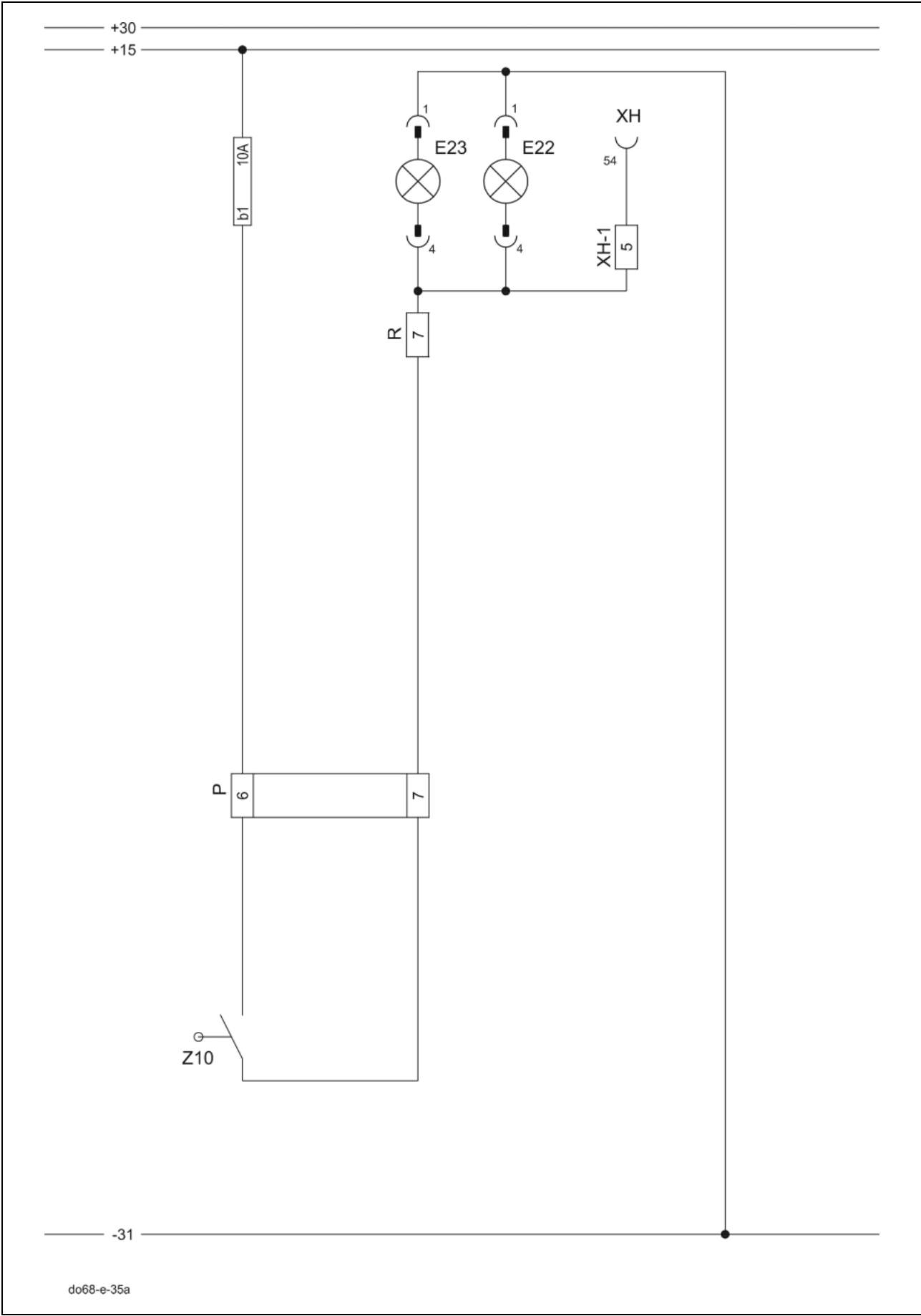
Connections list

Connector	mm²	Colour
E -1	1.5	gr
E -6	1.5	gr
E -8	4	br
M -4	1	gr/rd
M -6	2.5	br
S -8	1.5	gr

35a

Brake light

35a Brake light



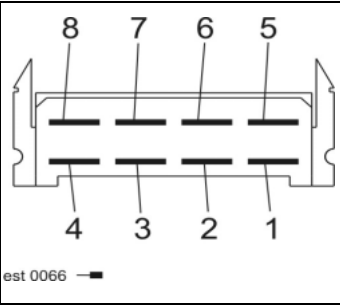
Key to diagram:

Coordinates		
E22	Left brake light	5-U-20
E23	Right brake light.....	5-U-16
XH	Trailer lighting socket.....	7-S-19
XH - 1	Wiring loom connector.....	6-R-20
Z10	Brake light switch.....	5-I-17

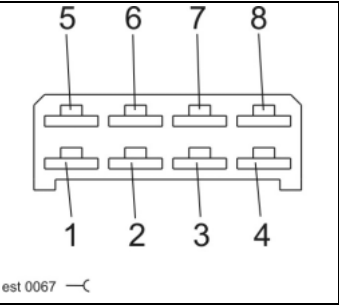
Description of function: None

Connector pin assignment:

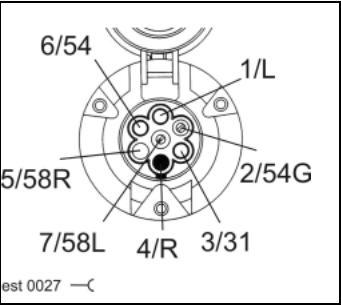
Connector P, R



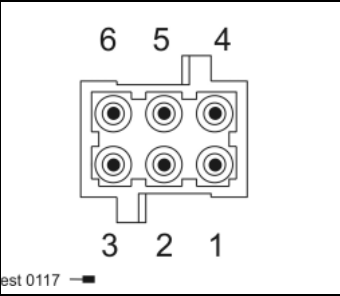
Socket P, R



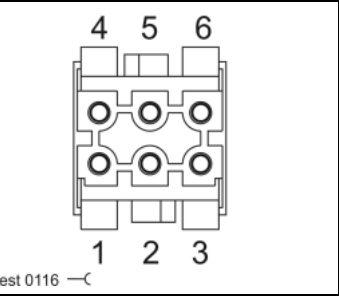
Socket XH



Connector XH - 1



Socket XH - 1



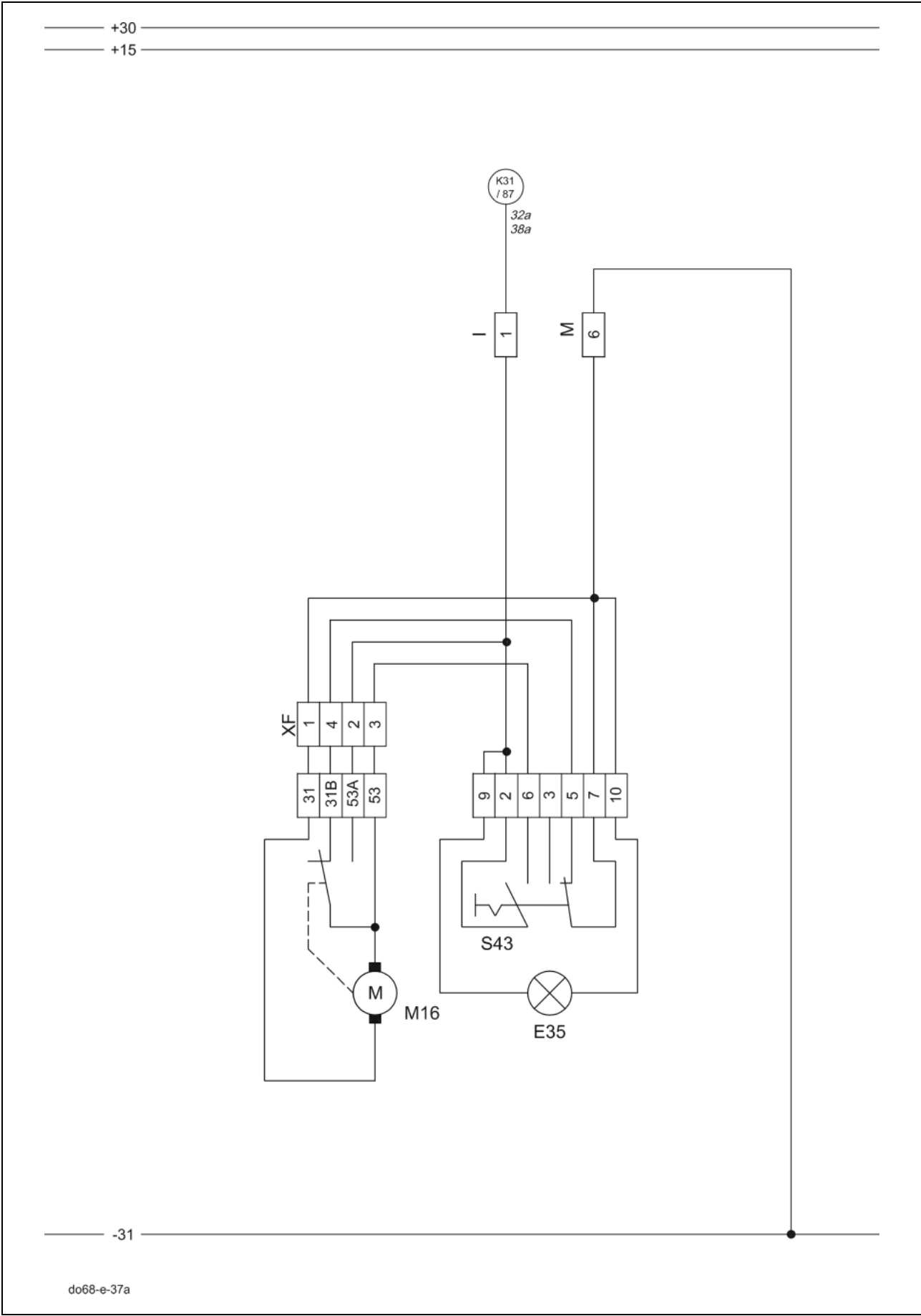
Connections list

Connector	mm²	Colour
P -6	1.5	bk
P -7	1.5	bk/rd
R -7	1.5	bk/rd

37a

Windscreen wiper

37a Windscreen wiper



Key to diagram:

		Coordinates
E35	Instrument lighting	3-l-18
K31	Cab relay	5-l-19
M16	Windscreen wiper motor, front.....	3-h-18
S43	Windscreen wiper switch	3-l-18
XF	Wiring loom connector.....	3-h-18

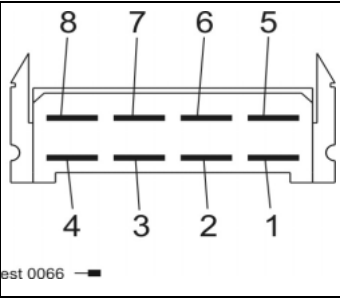
Measured value table:

Item	Component	Measured value	Remark
M16	Electric Motor	8.5 A	Max. current

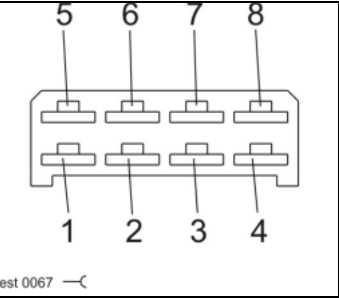
Description of function: None

Connector pin assignment:

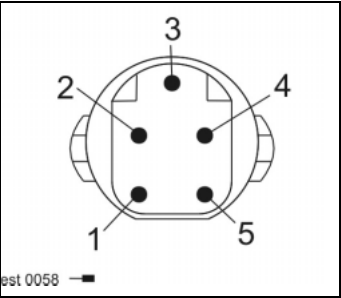
Connector I, M



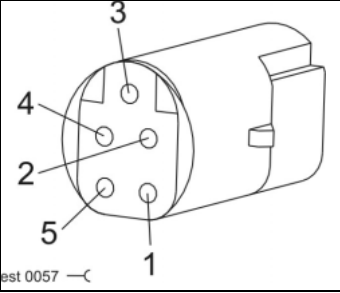
Socket I, M



Connector XF



Socket XF



Connections list

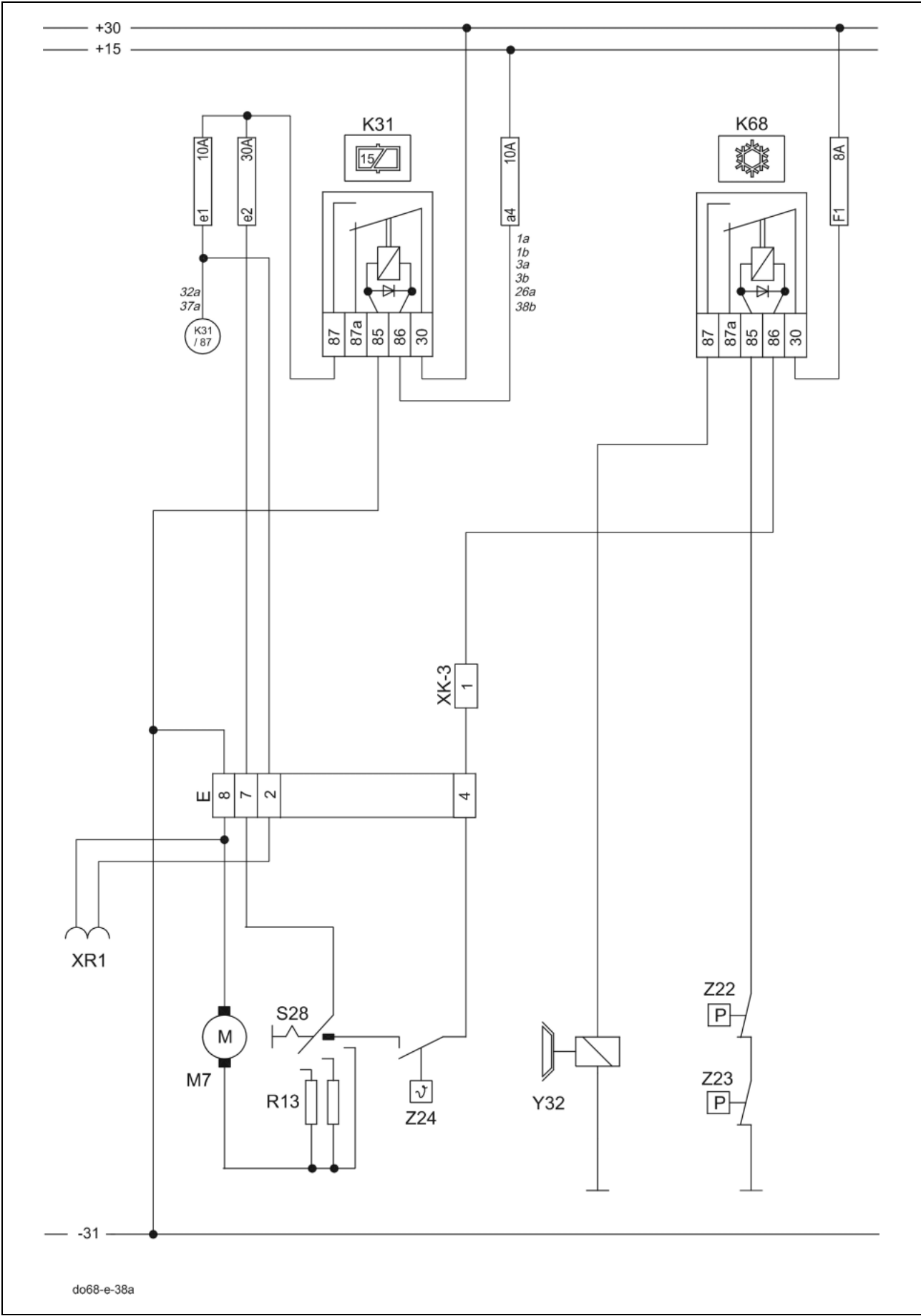
Connector	mm ²	Colour
I -1	1.5	bk/vi
M -6	2.5	br

38a

Compressor-type air conditioner

- for mechanical engine control

38a Compressor-type air conditioner - for mechanical engine control



Description of function:

Compressor-type air conditioner

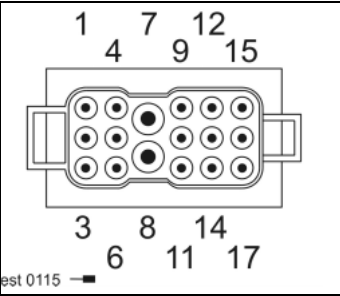
The two closed gas-pressure switches (Z22/Z23) must supply relay K68 with earth in order to allow the function of the electro-magnetic clutch (Y32).

When the fan switch (S28) and the thermostat switch (Z24) are closed, relay K68 is actuated and thus, solenoid coil (Y32) is also supplied with power by relay K68/87.

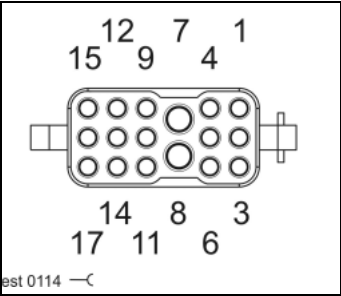
If the earth signal fails due to one of the two gas-pressure switches (Z22/Z23), the solenoid coil Y32 is switched off.

Connector pin
assignment:

Connector E



Socket E



Connections list

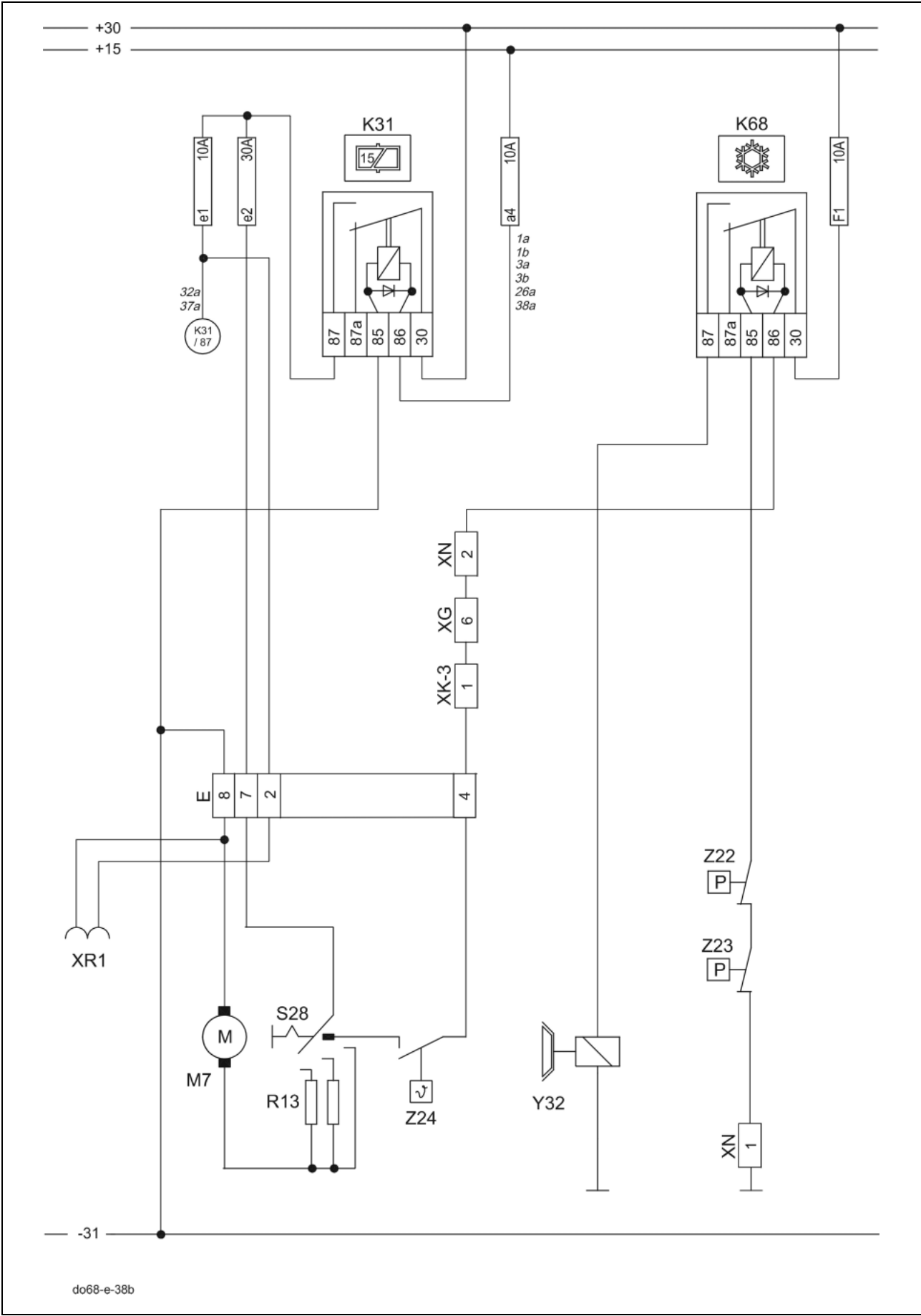
Connector	mm ²	Colour
E -2	1.5	bk/vi
E -4	1.5	rd/gn
E -7	4	bk
E -8	4	br

38b

Compressor-type air conditioner

- for electronic engine control (CAT)

38b Compressor-type air conditioner - for electronic engine control (CAT)



Key to diagram:

Coordinates

K31	Cab relay	5-I-19
K68	Compressor-type air conditioner relay.....	2-N-17
M7	Cab fan motor	1-h-18
R13	Cab fan series resistor potentiometer.....	1-h-18
S28	Cab fan switch	1-h-18
Z22	Compressor-type air conditioner high pressure actual value switch.....	3-O-19
Z23	Compressor-type air conditioner low pressure actual value switch.....	3-O-19
Z24	Compressor-type air conditioner temperature actual value switch.....	1-h-18
XG	Engine wiring loom / main wiring loom connector	4-O-19
XK -3	Connector in wiring loom	5-I-19
XN	Engine wiring loom connector (to switchbox)	2-N-17
XR1	12V broadcast radio connector.....	1-h-18
Y32	Compressor-type air conditioner electro-magnetic clutch solenoid coil.....	3-O-19

Measured value table:

Item	Component	Measured value	Remark
K31	Remote control relay	85±7 Ω	(Pin 85 - Pin 86)
K68		20 A	(Pin 30 - Pin 87a)
		40 A	(Pin 30 - Pin 87)
Y32	Solenoid coil	3.4 Ω	

Description of function:

Compressor-type air conditioner

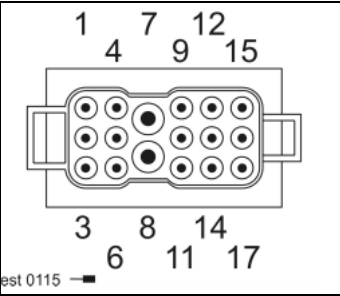
The two closed gas-pressure switches (Z22/Z23) must supply relay K68 with earth in order to allow the function of the electro-magnetic clutch (Y32).

When the fan switch (S28) and the thermostat switch (Z24) are closed, relay K68 is actuated and thus, solenoid coil (Y32) is also supplied with power by relay K68/87.

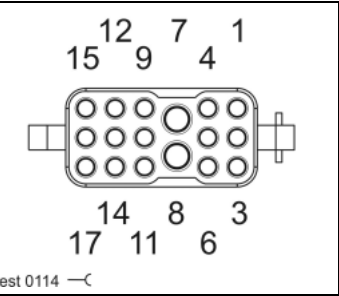
If the earth signal fails due to one of the two gas-pressure switches (Z22/Z23), the solenoid coil Y32 is switched off.

Connector pin assignment:

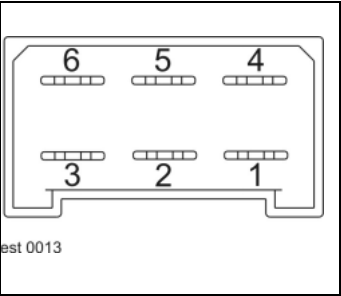
Connector E



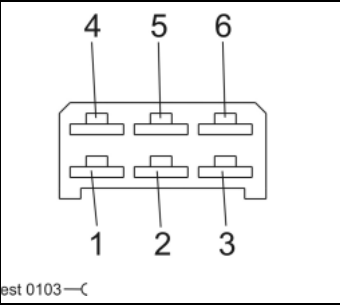
Socket E



Connector XG



Socket XG



Connections list

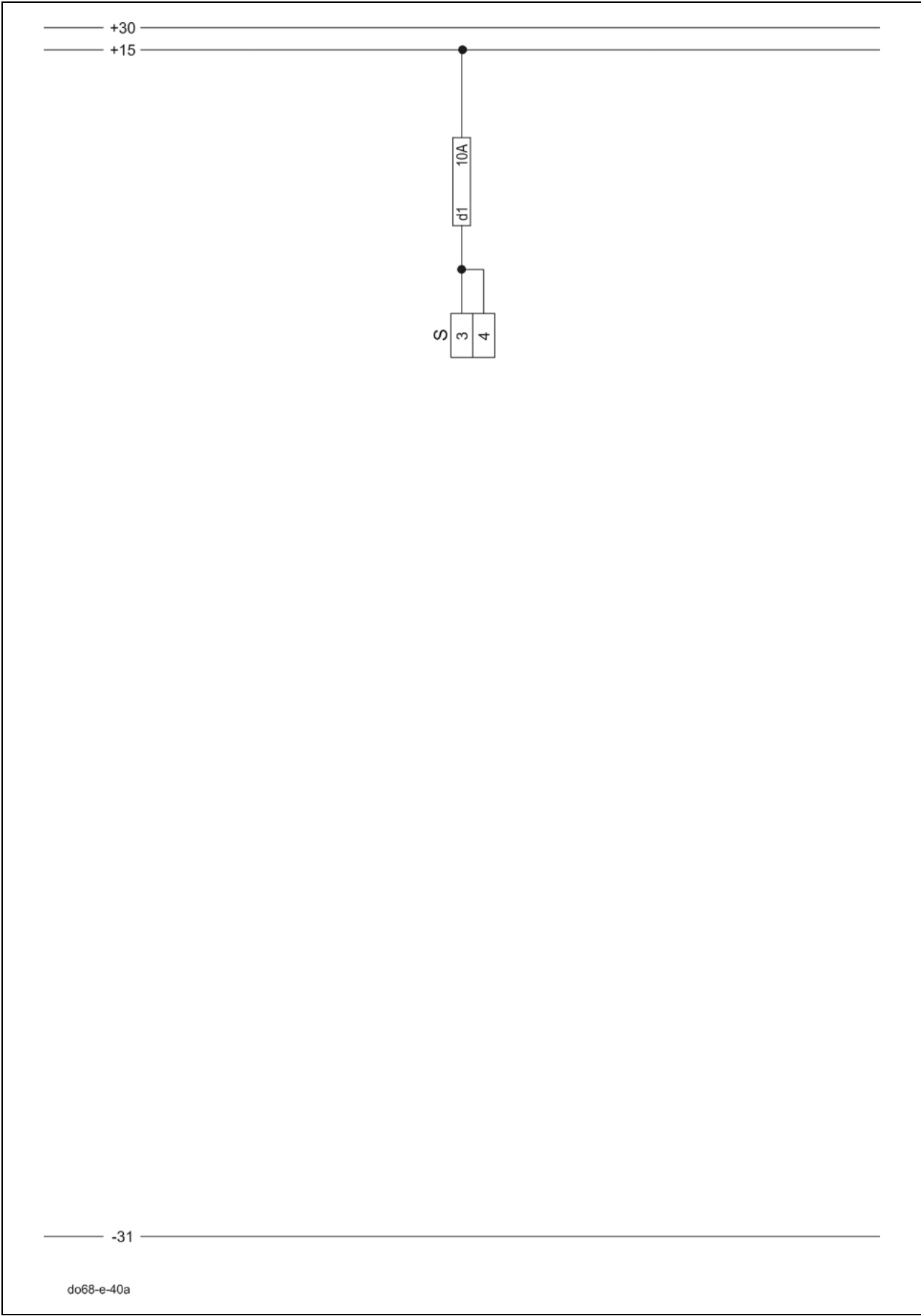
Connector	mm²	Colour
E -2	1.5	bk/vi
E -4	1.5	rd/gn
E -7	4	bk
E -8	4	br
XG -6	1.5	rd/gn
XN -1	1.5	br
XN -2	1.5	rd/gn

40a

Additional sockets

(Connection)

40a Additional sockets (connection)



Key to diagram:

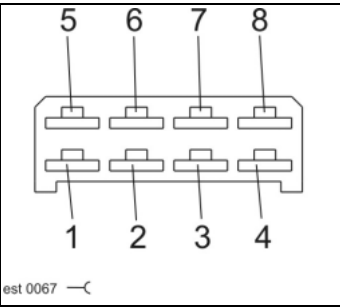
Coordinates

SConnector to central terminal compartment 5-I-19

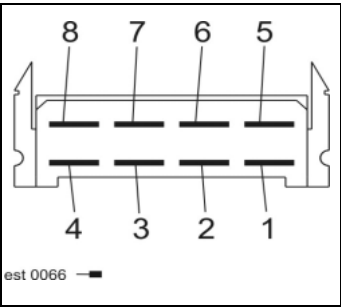
Description of function: None

Connector pin assignment:

Socket S



Connector S

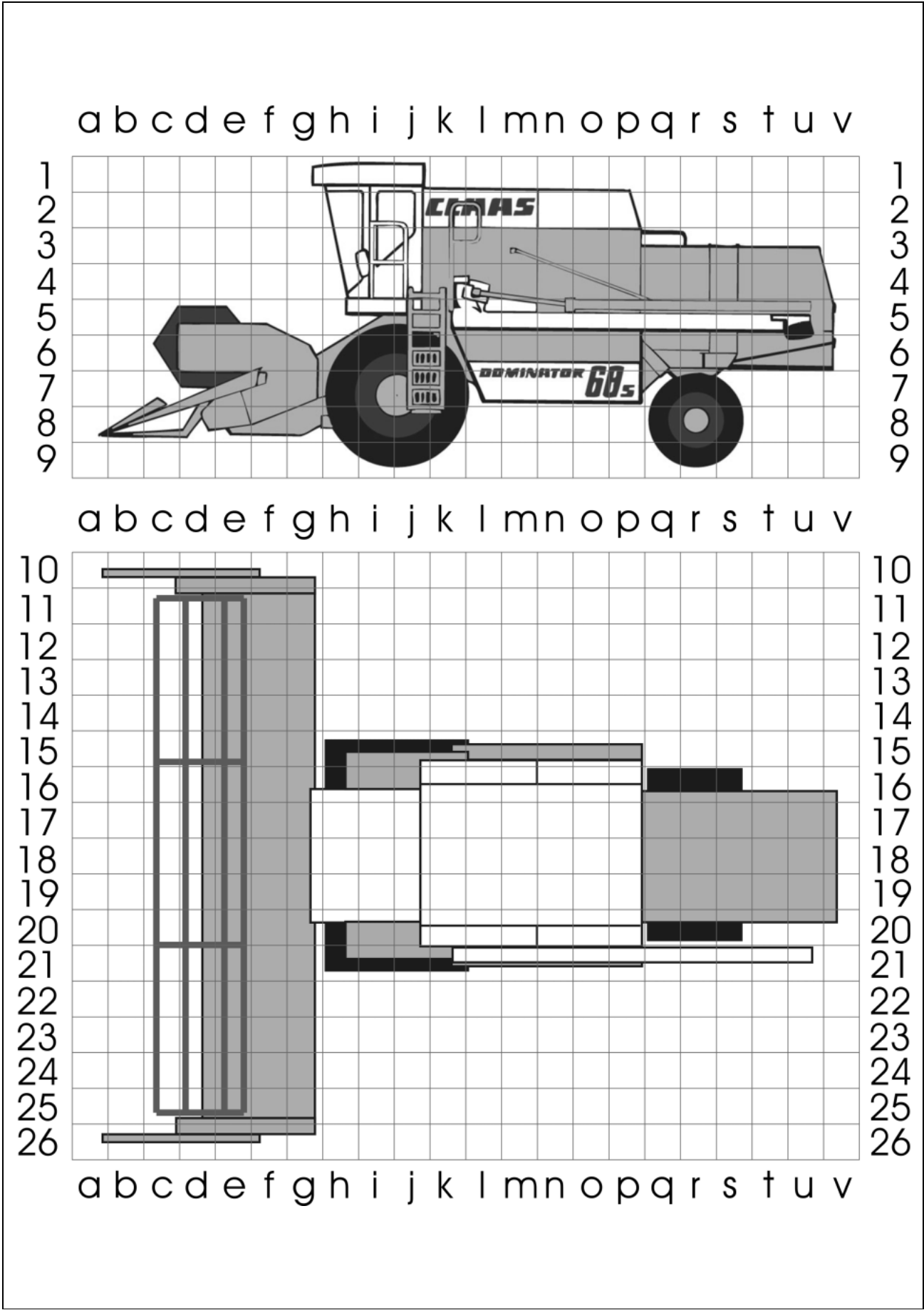


Connections list

Connector	mm ²	Colour
S -3	1.5	bk/rd
S -4	1.5	bk/rd

Component grid

Component grid



Index

Electric System

Index:

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	Fuel level indicator	3a, 3b
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